VWC, VWCLP 3500

Owners Manual

Product Manual

Code P19073

050406

VWC/VWCLP 3500 OWNERS MANUAL

INSTALLATION, OPERATING INSTRUCTIONS AND SERVICE MANUAL VWC 3500 AND VWCLP 3500 WINDLASSES

INTRODUCTION

You now own a Windlass from **MAXWELL'S** premier range, designed for automatic anchor handling.

The compact deck saving vertical design allows 180º wrap of the chain ensuring maximum engagement with the chainwheel. On VWC types a vertical drum allows working of mooring or docking lines from any direction.

A clutch allows manual control for lowering the anchor under free fall and manual override when using the emergency crank. The clutch also allows independent operation of the drum on VWC types.

**** IMPORTANT ****

FAILURE TO ADHERE TO THE CORRECT APPLICATION, INSTALLATION, OPERATION AND TO CARRY OUT THE MAINTENANCE SERVICE AS DESCRIBED HEREIN, COULD JEOPARDISE YOUR SAFETY AND INVALIDATE THE WARRANTY.

Your **MAXWELL** Windlass is a precision engineered product. Please read these instructions carefully.

SPECIFIATIONS

PULL AT CHAINWHEEL	1590 kg Max (3500 lbs)
CHAIN SIZE	Short Link Max 14mm (9/16")
LINE SPEED AT NORMAL WORKING LOAD,HYD	12Metres/min (39 feet/min)
LINE SPEED AT NORMAL WORKING LOAD,12VDC	8.7Metres/min (29 feet/min)
LINE SPEED AT NORMAL WORKING LOAD,24VDC	11Metres/min (36 feet/min)

POWER OPTIONS

	Product Code	
VWC 3500		
100mm (4") Deck Clearance	P10086	12 Volt DC
	P10088	24 Volt D.C.
	P14076	Hydraulic
200mm (8") Deck Clearance	P10096	12 Volt DC
	P10098	24 Volt DC
	P14085	Hydraulic
VWCLP 3500		
100mm (4") Deck Clearance	P12091	12 Volt D.C.
	P12093	24 Volt D.C.
	P14091	Hydraulic
200mm (8") Deck Clearance	P12096	12 Volt DC
	P12098	24 Volt DC
	P14095	Hydraulic

ELECTRIC MODELS

Current at Normal Working Load

12 Volt	130-160 Amps
24 Volt	66-82 Amps

Current at Stall

12 Volt	450 Amps
24 Volt	220 Amps

SUPPLY CABLES See Pages 13-14

*** HYDRAULIC MODELS**

Recommended Flow	40 Litre/min (11 US Gal/min)
Maximum Flow	48 Litre/min (13 US Gal/min)
Maximum Pressure	138 BAR (2000 p.s.i.)
Hydraulic Supply Lines	12mm (½") diameter
Hydraulic Motor Ports	7/8" UNF st'd motor (options ¾" UNF)
Oil	Viscosity ISO 32 - ISO 68 @ 20-50ºC Suitable oils: Shell Rimula X 15W-40; Shell Myrina M 15W-40; Penzoil SAE 10W-40; Texaco 2109 SAE 15W; Texaco 1814 SAE 10W-40. BP HLPHM 32-68; Castrol Hyspin AWS T0410.

*** Levels of flow/pressure below that specified can be accommodated with a motor change - see options page 5.**

Motor	Max Flow/Min		Max Pressure		Max Pull		Normal Rate/Min	
Option	Lt	US Gal	Bar	P.S.I.	Kg	Lbs	Metres	Feet
P14367	30	8.3	138	2000	1430	3150	12	39
P14366	25	7.0	138	2000	1160	2550	12	39
P14365	15	4.0	138	2000	565	1240	12	39

WEIGHT (Nett including Emergency Crank)

VWC 3500	Product Code	KGS	LBS
100mm (4”) Deck Clearance	P10086	48.3	106.3
	P10088	48.3	106.3
	P14076	40.1	88.3
200mm (8”) Deck Clearance	P10096	49.3	108.5
	P10098	49.3	108.5
	P14085	41.1	90.5
VWCLP 3500			
100mm (4”) Deck Clearance	P12091	43.2	95.1
	P12093	43.2	95.1
	P14091	35.0	77.0
200mm (8”) Deck Clearance	P12096	44.2	97.3
	P12098	44.2	97.3
	P14095	36.0	79.2

IMPORTANT

PERSONAL SAFETY WARNINGS

WHEN USING YOUR WINDLASS AT ALL TIMES PRACTICE GOOD SEAMANSHIP AND AVOID ANY LIKELIHOOD OF INJURY OR ACCIDENT BY ADHERING TO THE FOLLOWING RULES.

AT ALL TIMES KEEP HANDS, FEET, LOOSE CLOTHING AND HAIR WELL CLEAR OF THE WINDLASS.

NEVER USE THE WINDLASS UNDER POWER WITH THE LEVER INSERTED EITHER IN THE CLUTCH NUT OR EMERGENCY CRANK COLLAR.

WHEN OPERATING THE CHAINWHEEL PAWL, KEEP FINGERS AWAY FROM THE INCOMING CHAIN. OPERATE USING THE LEVER UNDER, AND GUARDED BY, THE CHAINPIPE.

WHEN THE WINDLASS IS NOT IN USE, OR WHEN USING THE EMERGENCY CRANK, MAKE SURE THE WINDLASS IS ISOLATED FROM THE POWER SUPPLY BY TURNING THE WINDLASS ISOLATOR SWITCH TO “OFF”.

NEVER OPERATE THE WINDLASS FROM A REMOTE STATION WITHOUT A CLEAR VIEW OF THE WINDLASS AND HAVING MADE SURE THAT EVERYONE IS WELL AWAY FROM THE WINDLASS.

IF YOUR WINDLASS DOES NOT HAVE A REMOTE CONTROL STATION AND IS OPERATED FROM THE FOOTSWITCHES ONLY, ALWAYS IMMEDIATELY AFTER USE, TURN THE WINDLASS ISOLATOR SWITCH TO “OFF”. THIS WILL PREVENT ACCIDENTAL WINDLASS OPERATION IF YOU OR PASSENGERS ACCIDENTALLY STAND ON FOOTSWITCHES.

** IMPORTANT HINTS FOR SAFE USE OF WINDLASS **

BE SURE YOUR WINDLASS HAS BEEN CORRECTLY SPECIFIED AND INSTALLED, YOURS AND OTHERS SAFETY MAY DEPEND ON IT. THE WINDLASS SHOULD BE USED IN CONJUNCTION WITH A CHAINSTOPPER OF THE APPROPRIATE SIZE. FOR AUTOMATIC OPERATION TO BE POSSIBLE, THE ANCHOR MUST BE SELF LAUNCHING.

MAXWELL WILL NOT IN ANY WAY BE HELD RESPONSIBLE FOR SELECTION OF A WINDLASS BY OTHERS, INCLUDING DISTRIBUTORS AND AGENTS. IF IN DOUBT, SEND FULL DETAILS OF YOUR CRAFT TO OUR SALES DEPARTMENT FOR APPRAISAL AND WRITTEN RECOMMENDATION.

1. Run the engine whilst raising or lowering the anchor. Not only is this a safety precaution, it also helps minimise the drain on the batteries.

2. Always motor up to the anchor while retrieving the chain.
   Do not use the Windlass to pull the boat to the anchor.

3. If the anchor is fouled, do not use the Windlass to break it out.
   With the chainstopper taking the load, use the boats engine to break the anchor loose.

4. Do not use the Windlass as a Bollard.
   In all but the lightest conditions, engage the chainstopper after completing the anchoring manoeuvre.

5. In heavy weather conditions, always use a heavy anchor snub from the chain directly to a Bollard or Sampson Post.

6. DO NOT USE THE CHAINSTOPPER OR WINDLASS AS A MOORING POINT.

7. ALWAYS TURN THE ISOLATOR SWITCH TO “OFF” BEFORE LEAVING BOAT.

8. When using the Windlass DO NOT SWITCH IMMEDIATELY FROM ONE DIRECTION TO THE OTHER WITHOUT WAITING FOR THE WINDLASS TO STOP AS THIS COULD DAMAGE THE WINDLASS. Abuse is not covered by Warranty.

9. The Circuit Breaker and Isolator Switch Panel provides high current protection for the main supply cables and also the means to isolate the circuit. When the Isolator Switch is “ON” (red indicator light shows) the system can be activated at either the footswitches or the remote control station. <u>When the system is not being used, ensure that the Isolator Switch is turned “OFF”.</u>

10. Never proceed at speed with a bow mounted self launching anchor in position, without first ensuring that your winch clutches are fully engaged, and having made fast the anchor and engaged your chainstopper.

DO NOT DEPEND ON THE WINDLASS TO HOLD THE ANCHOR IN ITS BOW ROLLER. A NYLON LINE SHOULD BE USED TO SECURE THE ANCHOR INTO ITS STOWED POSITION WHEN UNDERWAY AND WILL NEED TO BE REMOVED BEFORE OPERATION OF THE WINDLASS. ALTERNATIVELY, A PIN THROUGH THE BOW ROLLER AND THE SHANK OF THE ANCHOR CAN BE USED FOR SECURING.

Most Windlass models have clutches for the manual pay out of ground tackle in the event of a loss of power. It is therefore prudent to secure the anchor to the boat by the means described above.

APPLICATION

THE MAXWELL VWC AND VWCLP 3500 WINDLASSES ARE DESIGNED FOR ALL CHAIN SYSTEMS USING UP TO A MAXIMUM CHAIN SIZE OF 14MM (9/16") SHORT LINK CHAIN.
To save weight, a smaller size High Tensile Chain may be used.

**** WARNING ****

BE SURE YOUR WINDLASS HAS BEEN CORRECTLY SPECIFIED BEFORE INSTALLATION, YOURS AND OTHERS SAFETY MAY DEPEND ON IT.

MAXWELL WILL NOT IN ANY WAY BE HELD RESPONSIBLE FOR SELECTION OF A WINDLASS BY OTHERS, INCLUDING DISTRIBUTORS AND AGENTS. IF IN DOUBT, SEND FULL DETAILS OF YOUR CRAFT TO OUR SALES DEPARTMENT FOR APPRAISAL AND WRITTEN RECOMMENDATION.

Your Windlass should have a rating of approximately 3 times total combined weight of the anchor and chain.

The ground tackle should have been selected taking into account:
a) Boat size, displacement and windage.
b) Conditions of operation such as maximum depth of water, type of bottom and weather conditions.
c) Holding power and size of anchor, taking special note of the manufacturers' recommendations.

CHAIN FIT

CORRECT FIT OF CHAIN TO CHAINWHEEL IS ESSENTIAL FOR THE WINDLASS TO OPERATE PROPERLY.

A range of chainwheels are available to suit your Windlass.
The correct fit can only be guaranteed where a standard chain known to us is used. Alternatively a 450mm (18") or 12 links (whichever is longer) sample must be forwarded to us to match fit. Where patterns to suit are not held by us we are able to manufacture to instructions and reserve the right to charge cost thereof.

CHAIN STOPPER

THE WINDLASS SHOULD BE USED IN CONJUNCTION WITH A MAXWELL CHAIN STOPPER OF THE APPROPRIATE SIZE.

INSTALLATION

WHERE TO LOCATE THE WINDLASS

Please refer to the installation drawings with these instructions/.

The MAXWELL VWC AND VWCLP 3500 Windlasses operate in dual direction power UP/DOWN.
On standard installations "UP" is clockwise rotation when looking down on the windlass. Opposite handed chain pipes are available so that handed dual Windlass installations can be made. On the opposite hand Windlass, "UP" would correspond with counter clockwise rotation when looking down on the Windlass.

The deckplate should be mounted pointing in the direction of the incoming chain and with the left hand side parallel to the line of the incoming chain. This arrangement allows the chain to have maximum engagement with the chainwheel.

The Windlass must be positioned to allow the chain to have a clear run from the fairlead or bow roller on to the chainwheel.

The bow roller should have a vertical groove to suit the profile of the chian. This will align the chain so that it enters the chainwheel without twisting. Ideally the outlet from the chainpipe should be directly over the chain locker and the chain should have at least 600mm (2ft) clear fall to allow the chain to straighten before passing through the Windlass.

If it can be arranged the chain locker bulkhead should pass between the chainpipe outlet in the deckplate and the Windlass gearbox. This will keep the gearbox, motor and wiring or hydraulic hoses dry and away from flaying chain. Access for servicing from inside the cabin area can usually be arranged through a locker.

The chain must gravity feed into the locker. If the chainpipe cannot be positioned directly over the locker, heavy wall flexible plastic pipe can be used to direct the chain to the required area.
It is important that the chain slips through easily, completely unaided. It may be necessary to provide the pipe with a bell mouth or to bell mouth the entrance to the chainpipe from the locker to assist the free flow of the chain from the locker.
The chain locker must be of such a size that the chain will heap up and feed out naturally without fouling.

NOTE: Make sure you securely fasten the end of the chain to the boat.

**** IMPORTANT ****

FOR AUTOMATIC OPERATION TO BE POSSIBLE, THE ANCHOR MUST BE SELF LAUNCHING. This is, once the Windlass is operated to reverse out the chain, the anchor must free fall, or the bow roller arrangement be such that the anchor is automatically launched.

When positioning the Windlass, make sure that there is room to swing the emergency crank so that it will clear the pulpit and life lines or Bulwark

Allow access for conveniently connecting the supply lines under deck after the Windlass is bolted in position.

It should be noted that the gearbox can be indexed through 4 different positions in relation to the deckplate This can be achieved on installation by referring to the appropriate assembly drawing and indexing at either end of the spacer tube on bolts. Be sure to select the most convenient position and allow for the best run for the chain to clear the motor.

WHERE TO LOCATE THE CHAIN STOPPER

The chain stopper should be positioned and aligned in a convenient position between the Windlass and the bow roller, so that it clears the anchor stock. The chain should pass through the stopper without being deflected.

WHERE TO LOCATE THE FOOTSWITCHES

FOOTSWITCHES SHOULD BE POSITIONED FAR ENOUGH AWAY FROM THE WINDLASS TO ENSURE OPERATOR SAFETY.
To allow the operator to tail from the warping drum, footswitches should be at least 500mm (20”) from the Windlass.
THE BELOW DECK PORTION OF THE FOOTSWITCH SHOULD NOT BE EXPOSED TO WATER OR WET ENVIRONMENT AND THE BREATHER HOLES MUST BE KEPT CLEAR.
Ideally, they should be external to the chain locker. The arrows on the footswitches should be arranged to indicate the direction of operation.

WHERE TO LOCATE THE REVERSING SOLENOID (Electric Windlass Only)

This unit is used ONLY when a Dual Direction control system is being installed. (Refer wiring diagrams). **The Reversing Solenoid should be located in a dry area in close proximity to the Windlass.**
IT MUST NOT BE LOCATED IN THE WET ENVIRONMENT OF THE CHAINLOCKER.
Locating close by the Windlass considerably shortens the total length of the main power supply conductors required.

WHERE TO LOCATE THE BREAKER/ISOLATOR PANEL (Electric Windlasses Only)

The Maxwell Breaker/Isolator Panel is used when either the Dual Direction system or the Single Direction System is used.

The Breaker/Isolator Panel is selected to provide limited protection only for the motor and full protection for the supply cables.

This unit also provides the means for isolating the electrical system from the battery.
This should be mounted in a dry place within 1.8 metres (72") of cable length from battery.
This equipment or equivalent is mandatory to meet U.S.C.G. requirements.

WHERE TO LOCATE THE CONTROLS

The remote control stations can be positioned as required, i.e. Bridge, Helm, Cockpit or Foredeck to suit your requirements.
Mount the panels where the terminals project into a dry area and if mounted in an area where the face is exposed to the weather, i.e. Fly Bridge, **the mounting must be bedded down with sealant.**
They may be wired directly to, or linked together in series to the Reversing Solenoid (Refer wiring diagrams).

CONTROL CIRCUITS

MAXWELL Windlasses may be installed for single direction or dual direction operation. The control circuits are detailed in Drawings D3555 and B3424.

These systems should be wired throughout using 1.55mm² (16 AWG) Cable. **A manually resettable ignition proof 3 amp fuse or breaker should be fitted within one metre (40") of the Breaker/Isolator Panel as shown on Drawing B3424.**
The above requirements are mandatory for this system to meet USCG, ABYC AND NMMA.

After all connections have been made and system tested, seal terminals against moisture by spraying with CRC2043 "Plasti-Coat", CRC3013 "Soft Seal" or CRC2049 "Clear Urethane".

MAIN ELECTRICAL SYSTEM

The main electrical system is a two cable ungrounded fully insulated negative return system.
The motor is of the isolated earth type.
This system is used to minimise electrolytic and corrosion problems.
The system should be wired as per drawing B3424 or B3555, having taken into consideration the best location for the main elements as previously discussed.
After all connections have been made and system tested, seal terminals against moisture by spraying with CRC2043 "Plasti-Coat", CRC3013 "Soft Seal" or CRC2049 "Clear Urethane".
The main supply cables should be selected from the table on the following page.

RECOMMENDED MAIN CABLE CONDUCTOR SIZE

12 VOLT D.C. SYSTEMS

Conductor Length Battery to Winch		Conductor Size		Engine Room Size Correction	
Metres	**Feet**	**MM²**	**A.W.G**	**MM²**	**A.W.G**
3.1	10	34	2	42	1
4.6	15	34	2	42	1
6.2	20	34	2	42	1
7.7	25	42	1	-	-
9.2	30	54	0	-	-
10.8	35	54	0	-	-
12.3	40	67	00	-	-
15.4	50	85	000	-	-

24 VOLT D.C. SYSTEMS

Metres	**Feet**	**MM²**	**A.W.G**	**MM²**	**A.W.G**
3.1	10	13.3	6	22	4
4.6	15	13.3	6	22	4
6.2	20	13.3	6	22	4
7.7	25	13.3	6	22	4
9.2	30	13.3	6	22	4
10.8	35	22.0	4	-	-
12.3	40	22.0	4	-	-
15.4	50	22.0	4	-	-

NOTE

a) Conductor length means the actual length of the conductor between the battery and Windlass.
b) Recommendations allow for a maximum 10% voltage drop approximately over the conductor length.
c) Where portion of cable runs through the engine room a size increase should be made as indicated.
d) Recommendations assume cable insulation has a minimum thermal rating of 90ºC.
e) **The above recommendations are in accordance with the requirements of USCG, ABYC AND NMMA.**

HYDRAULIC SYSTEMS

Pressure/flow quoted in specification on pages 4-5 assumes operation at rated capacity with standard motor fitted. Levels below that specified can be accommodated, by a motor change, with a corresponding change to stall torque and/or speed. (Refer chart page 5).

Several levels of supply and control are possible.

BASIC SYSTEM (Refer Hydrualic diagrams).
This covers applications where the Windlass is supplied from an engine driven pump or single function power pack. Control of the Windlass is via a hydraulic bi-directional solenoid valve which is operated by a self centering UP/DOWN toggle switch type remote control or the footswitches.

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PREPARATION OF MOUNTING

Standard units will accommodate deck thickness up to 100mm (4”). Extra clearance models are available to accommodate deck thickness in the range of 100mm to 200mm (8”).
It should be noted that keeping the deck thickness to no more than 75mm (3”) and 175mm (7”) respectively, will considerable enhance serviceability. This will allow access to the gearbox mounting bolts, allowing the gearbox to be removed as a sealed unit, without dismantling the top works.

**** IMPORTANT ****

1. **IT IS IMPERATIVE THAT THE DESIGNER/INSTALLER ENSURES THAT THE DECK AND UNDERDECK PAD ARE OF SUFFICIENT THICKNESS AND STRUCTURAL STRENGTH TO SUSTAIN THE LOADS CAPABLE OF BEING IMPOSED ON OR BY THE WINDLASS. THE UNDERDECK PAD SHOULD SPREAD THE LOADS AS WIDE AS POSSIBLE AND IF USE CAN BE MADE OF A BULKHEAD OR CROSS MEMBER TO PROVIDE STIFFENING, THIS SHOULD BE DONE.**

2. **IT IS VERY IMPORTANT THAT THE ABOVE DECK PAD TOP SURFACE OR DECK AREA COVERED BY THE TEMPLATE SUPPLIED, AND THE UNDERDECK AREA AGAINST WHICH THE LOAD WASHERS SEAT, ARE SMOOTH, FLAT AND GENERALLY PARALLEL.**

3. A template is supplied with these instructions for accurately spotting the mounting holes and marking the cut outs. After spotting, bore the necessary holes. These must be drilled parallel to each other and square to the mounting face.

Note: For boats of steel or aluminium construction, it is very important that the deckplate is insulated from the deck with a non conductive gasket, that the mounting studs pass through insulators and that the underdeck fixings are insulated from the deck. It is also important that the anchor and chain is insulated from the hull, including rubber lining, the chain locker and insulating the fixing for the end of the chain to the hull.
Without these precautions severe electrolysis can occur.
It is not necessary to separately earth the Windlass, as the electric motor is of the isolated earth type.

PREPARING THE WINDLASS

Remove the Windlass from the packaging.
Subject tot he type of packaging used, the Windlass will be either completely assembled or with the motor separated from the gearbox.
Refer to the appropriate assembly drawing provided for the Windlass being installed and proceed as follows:

4. If the motor is not fitted to gearbox, assemble it as follows:
   For Electric Motors
   Offer motor up to gearbox aligning drive pin with slot in the worm item 20 Drawing B202039.
   Insert and tighten two bolts item 37 and washers items 38, 39 provided (refer to Assembly Drawings B202097 for VWC types and B202099 for VWCLP types).
   For Hydraulic Motors
   Offer motor up to gearbox aligning drive pin with slot in the worm item 20 Drawing 202039.
   Insert and tighten two bolts item 37, washers items 38, 39 and nuts item 44 provided (refer to Assembly Drawings).

5. With a pen knife, or similar, carefully remove cap, item 1.
   Remove screw, item 2 and retaining washer, item 3.
   Unscrew clutch nut, item 4.
   Lift drum, item 42 from shaft (VWC models only).
   Undo two Bolts, item 6, with washers item 7 and remove stripper arm item 8, from chainpipe item 13.
   Lift outer clutch cone, item 5, chainwheel, item 9 and inner clutch cone, item 10 complete with springs and plungers items 46 and 45 from shaft.
   Remove two keys, item 31 and retaining circlip (two halves), item 32 from shaft, item 30.
   Lift wave washer item 11 and emergency crank collar item 12 from shaft.

6. Remove washers items 27 and 23, by undoing six nuts item 29.

7. Remove top set of four bolts item 22 with spring washers item 23 and lift deck plate 14 from gearbox. Remove shaft item 30 from gearbox. **With gearbox held horizontally, check that oil is showing half way up the sight glass in the gearbox upper half. If necessary, top up with SAE90** (Shell Omala 320, Castrol Alpha SP320 or equivalent). **DON'T OVER FILL.**

MOUNTING THE WINDLASS

8. Clean the underside of the deckplate item 14.
   Make sure the mounting area on the deck is properly prepared, as per step 3 above and is clean.
   Using a sealant/bedding compound between the deckplate and the deck, lower the deckplate to the deck, guiding the mounting studs 26 through the pre drilled mounting holes and bed the deckplate down.

9. From the underside of the deck offer up washers items 27 and 23 and replace six nuts item 29.
IMPORTANT
Tighten the nuts progressively and evenly.
DO NOT USE POWER TOOLS.
Do not overtighten. Ensure installation is firm.

10. Lightly grease shaft item 30, using Marine grease, Lithium based or Lithium complex based, example Duckhams 'Keenol'; 'Castrol LMX'. Do not use soap based grease.
Feed shaft through the deckplate from below and hold in place by inserting key item 31.
Note: If space doesn't permit access from below, then shaft may be replaced from the top. This will involve removing key item 33 and other circlip item 34. Replace these from the underside once the shaft is installed.
Make sure that the circlip is properly located in the upper groove and that the key is properly seated.

11. Slide the gearbox assembly up on the shaft aligning the keyway (this will lift shaft) and locating the spacer tube item 35 on the spigot of the deck plate item 14.
Rotate the gearbox assembly to locate on downs Items 21 and 25 in the most appropriate of the four positions available.
Replace four bolts and spring washers items 22 and 23 removed in step 7 above.
Tighten bolts evenly and firmly - DON'T USE POWER TOOLS.
Replace circlip item 34, removed in step 4, in bottom end of shaft, making sure it is properly seated in groove.
Remove key item 31 from shaft.

12. Ensure parts removed in step 5 above are clean along with the top area of the deckplate.

13. Using a grease gun charged with grease (specified in 10 above) apply to grease nipple item 24 and grease main bearing.

14. Use grease (specified in step 10 above) and with the aid of a clean brush or non-fluffy rag, **lightly grease the thread** on the top end of the shaft item 30 and **the bores and clutch faces of the parts removed** in step 5 above, reassemble them as you go in reverse order.
IMPORTANT - care must be taken to ensure that keys 31 are properly seated in shaft and that circlip halves item 32 are properly seated and captivated by inner clutch cone item 10 on re-assembly.

IMPORTANT NOTE TO BOAT BUILDERS

After completing installation we suggest that you spray the top works of the winch with CRC3097 “Long Life”
Also protect the winch by wrapping with plastic film and tape.
Experience has shown that on long ocean deliveries as deck cargo sulphur from the ships exhausts settles and severely damages the chrome plating and stainless steel by breaking down the chrome oxide protective film.
PLEASE LET YOUR CUSTOMER RECEIVE THE WINDLASS FROM YOU IN THE SAME TOP QUALITY CONDITION THAT YOU RECEIVED IT FROM US.

OPERATION OF THE CONTROL SYSTEM

DUAL DIRECTION SYSTEM (Refer electrical drawings)

This system provides means of controlling the Windlass via a Reversing Solenoid which is actuated by a self centering UP/DOWN toggle switch type remote control or the footswitches.
An indicator light on the remote control glows when the power is “ON” and the system can be operated.

WARNING: When using the Windlass DO NOT SWITCH IMMEDIATELY FROM ONE DIRECTION TO THE OTHER WITHOUT WAITING FOR THE WINDLASS TO STOP AS THIS COULD DAMAGE THE WINDLASS. Abuse is not covered by Warranty. The Breaker/Isolator Panel provides protection for the main supply cables and means to isolate the circuit.

WARNING: When the Isolator Switch is “ON” the system can be activated at either the footswitches or the remote.
When the system is not being used, ensure that the Isolator Switch is turned “OFF”.

WARNING: This system provides protection for the motor from excessive current and short circuit. It does not provide protection against excessive heat build up due to prolonged operation or repeated operation under overload conditions. Make sure you give the motor time to cool. Abuse is not covered by Warranty.

OPERATING THE WINDLASS

LOWERING THE ANCHOR UNDER POWER

Proceed as follows:

1. Insert the lever, item 41, into the clutch nut item 4 and check that the clutches are tightened down firmly by turning the nut clockwise.
   REMOVE THE LEVER.

2. Check that the chain stopper is open and the pawl item 17 is disengaged from the chainwheel.
   NOTE: This may require jogging the Windlass "UP" by momentarily operating the footswitch.

3. If clutches are tightened down and the chain stopper and pawl are disengaged, the Windlass may be operated under power by either using the "DOWN" footswitch or the "DOWN" button on the Remote Control Station. Pulse the winch down to prevent over speeding of the motor. Continue until the required amount of chain is out.

RAISING THE ANCHOR UNDER POWER

Proceed as follows:

1. Carry out step 1 above.

2. If the clutches are tightened down, the Windlass may be operated under power by either using the "UP" footswitch or the "UP" button on the Remote Control Station. Hold until the required amount of chain has been brought in.

   Care should be taken when docking the anchor. Jog in the last metre (few feet) carefully seating the anchor home.

   NOTE: It is not necessary to disengage the pawl or open the chain stopper to operate the Windlass in the "UP" direction.

LOWERING THE ANCHOR UNDER MANUAL CONTROL

This method is generally used in tight anchorages or an emergency situation, where a fast dump is required.

Proceed as follows:

1. Insert the lever item 41 into the clutch nut item 4 and check that the clutches are tightened down firmly by turning the nut clockwise.
   REMOVE THE LEVER.

2. Check that the chainstopper is open and the pawl item 17 is disengaged from the chainwheel.

NOTE: This may require jogging the Windlass “UP” under power or in an emergency by using the emergency crank lever.
IF JOGGING UNDER POWER MAKE SURE THAT THE LEVER IS REMOVED FIRST.

3. **Standing well clear,** insert the lever into the clutch nut.
   Slowly back off the clutch nut.
   This will release the chain.
   Regulate the speed at which the chain goes out by tightening to slow, or easing to increase.

**** CAUTION ****

DO NOT ALLOW THE CHAINWHEEL TO FREE WHEEL AS THIS WILL ALLOW DANGEROUSLY HIGH CHAIN SPEEDS TO BUILD UP.

4. When the required amount of chain is out, tighten the clutch nut firmly, **remove the lever and stow.**

RAISING THE ANCHOR MANUALLY IN AN EMERGENCY

An emergency crank facility for raising the anchor is provided.

To use proceed as follows:

1. Check that the chainstopper is engaged.

   If a chainstopper is not fitted ensure that the pawl item 17 is engaged with the chainwheel.

2. Insert the lever in the clutch nut and release clutches by backing off the clutch nut in a counter clockwise direction.

3. Insert the ratchet lever into the emergency crank collar item 12, and engage pawl with one of the dogs in the chainwheel in the furthermost forward position.

4. Take the weight by pulling the lever back as far as possible, bring in the chain.
   Ease off and the pawl will take the load.
   Push lever to furthermost forward position and re-engage with the chainwheel.
   Repeat cycle, progressively bring in the anchor.

NOTE: If a chainstopper is not fitted, or if found more convenient, the pawl item 17 may be engaged with the chainwheel after each upward (clockwise) movement to hold the chainwheel from reversing.
Engage pawl by using lever under the chainpipe.

USING THE WARPING DRUM (VWC Models only)

The vertical Capstan can be used independently of the chainwheel. This is ideal for handling mooring lines, docking lines or a second anchor.

To use proceed as follows:

1. Check that the pawl item 17 is engaged with the chainwheel.

2. Insert the lever item 41 in the clutch nut item 4 and back off in a counter clockwise direction until it stops.

   The Capstan will now operate whilst the chainwheel remains stationery.

3. Take several turns of line around the drum in a clockwise direction.

   Whilst pulling on the tail press the “UP” footswitch. The Capstan will rotate in a clockwise direction.

   Increasing or decreasing the load on the tail, whilst holding the footswitch down will increase/decrease the rate at which the line will be hauled in.

Extra turns around the drum will increase the grip and require less load on the tail.

<u>CAUTION</u>: ENSURE THAT FOOTSWITCH IS NOT OPERATED ACCIDENTALLY WHILST EXTRA TURNS ARE BEING TAKEN. <u>KEEP FINGERS CLEAR.</u>

DON'T PUT SO MANY TURNS ON THE DRUM THAT EASING THE LOAD ON THE TAIL WILL NOT ALLOW THE ROPE TO SLIP ON THE DRUM.

MAINTENANCE

**** IMPORTANT ****

Failure to carry out the maintenance and service as described herein will invalidate warranty.

Recommended Lubricants

Gearbox Oil:	SAE 90, e.g. Shell Omala 320, Castrol Alpha SP 320.
Mainshaft & Bearing:	Marine grease, lithium based or lithium complex based, e.g. Duckhams 'Keenol'; 'Castrol LMX'. Do not use soap based grease.
Above Deck Components:	CRC 3097 Spray

1. **Prior to Season -** the above deck components should be removed and greased following the instructions under steps 5, 12, 13 and 14 of the installation instructions.

   Check level of oil in gearbox. If necessary top up as per step 7 of preparing the windlass instructions.

   The underdeck components should be sprayed, preferably with CRC3097 "Long Life" or alternatively, CRC6-66 or WD40.
   Particular attention should be paid to the motor on electric units, including the motor terminals, footswitch terminals, terminals on the Reversing Solenoid Pack or the Overload/Control Box plus the battery and isolator terminals.

2. **Bi-monthly throughout the Season -** grease the main bearing as per step 13 of the installation instructions.

3. **Six monthly -** repeat procedure under item 1 above.

4. **End of Season -** before storage carry out procedure under item 1.

5. **Above deck components -** clean the Windlass with a cloth damp with Kerosene (paraffin). Spray preferably with CRC3097 "Long Life" or alternatively, CRC6-66 or WD40. Polish off with a clean non-fluffy cloth.

   Regular use of CRC3097 "Long Life" will assist maintaining the bright chrome finish.

   Natural lustre of bronze units can be restored by polishing with mild abrasive liquid polish. **Don't use on chrome units.**

SERVICING OF GEARBOX

The gearbox is a totally self contained sealed unit. Providing the Windlass is not abused this unit should give years of trouble free service.
Every three years the gearbox should be removed, oil drained, cleaned and oil replaced with SAE 90, e.g. Shell Omala 320, Castrol Alpha SP 320.

If further maintenance is required, refer to drawing B202039 and accompanying parts list, for disassembly.

SERVICING OF MOTOR - Electric Units

If necessary, the motor can be removed from the gearbox without draining the gearbox oil as the gearbox is a sealed unit.
The motor is removed by undoing two bolts item 37 and washers items 38 and 39 (refer to assembly drawing B203097 for VWC types and B203099 for VWCLP types).
A replaceable drive pin item 40 is a press fit in the output end of the drive shaft. This pin engages the slot in the worm item 20 drawing B202039.
Providing the Windlass is properly installed with the Maxwell Overload Control Box and Breaker Panel, and the Windlass is not abused, trouble free operation can be expected.
Replacement brush sets are available - order Part No. S.P. 1383 - 12 Volt, Part No. S.P. 1384 - 24 volt.

SERVICING OF MOTOR - Hydraulic Units

If necessary, the motor can be removed from the gearbox without draining the gearbox oil as the gearbox is a sealed unit.
The motor is removed by undoing two bolts, item 37, washers items 38 and 39, and nuts item 44.

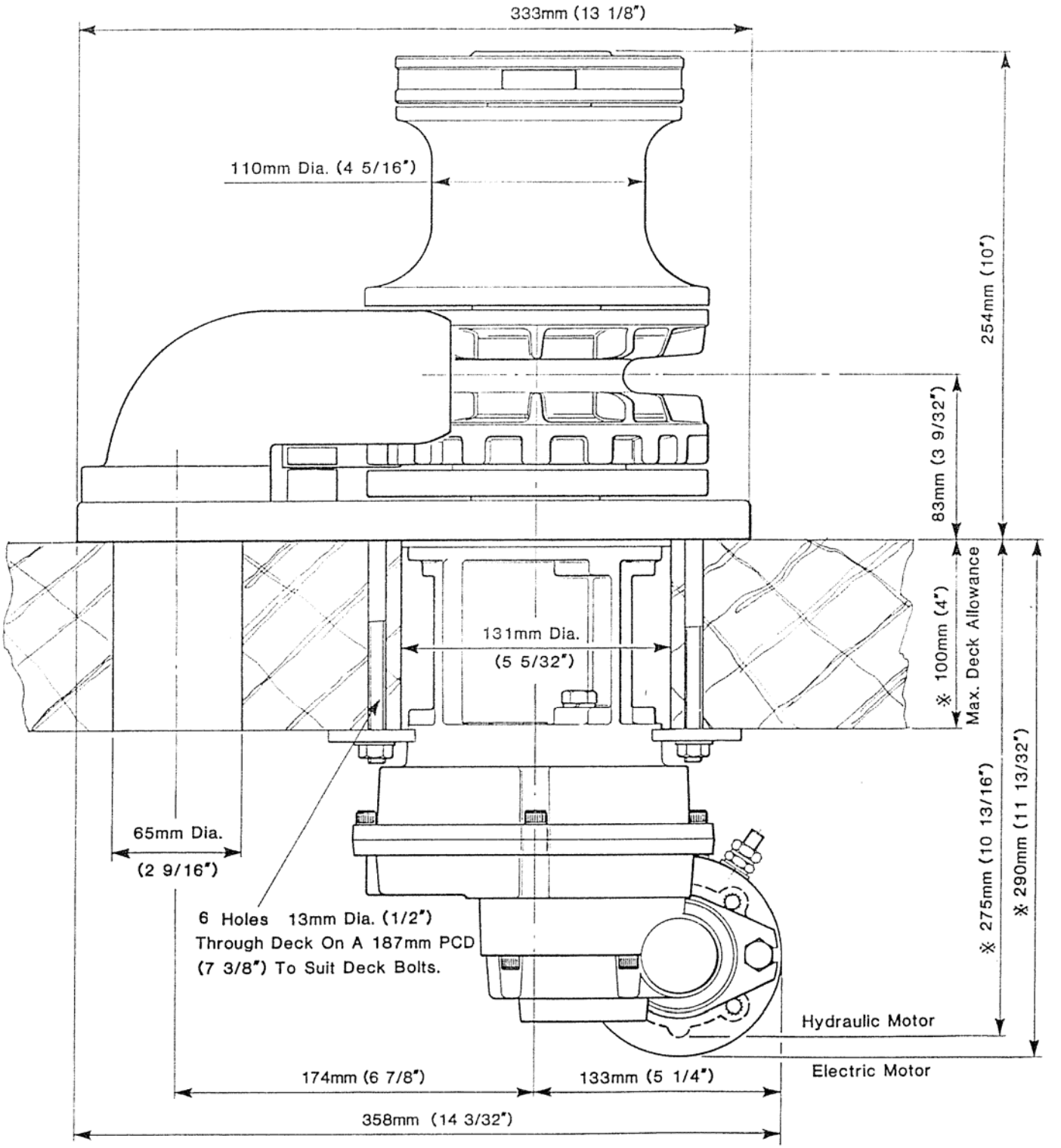
(Refer assembly drawings).

ORDERING SPARE PARTS AND TECHNICAL SUPPORT

Please refer back cover for your nearest MAXWELL distributor
or visit our website www.maxwellmarine.com.

When ordering spare parts and for technical support, please quote the following:

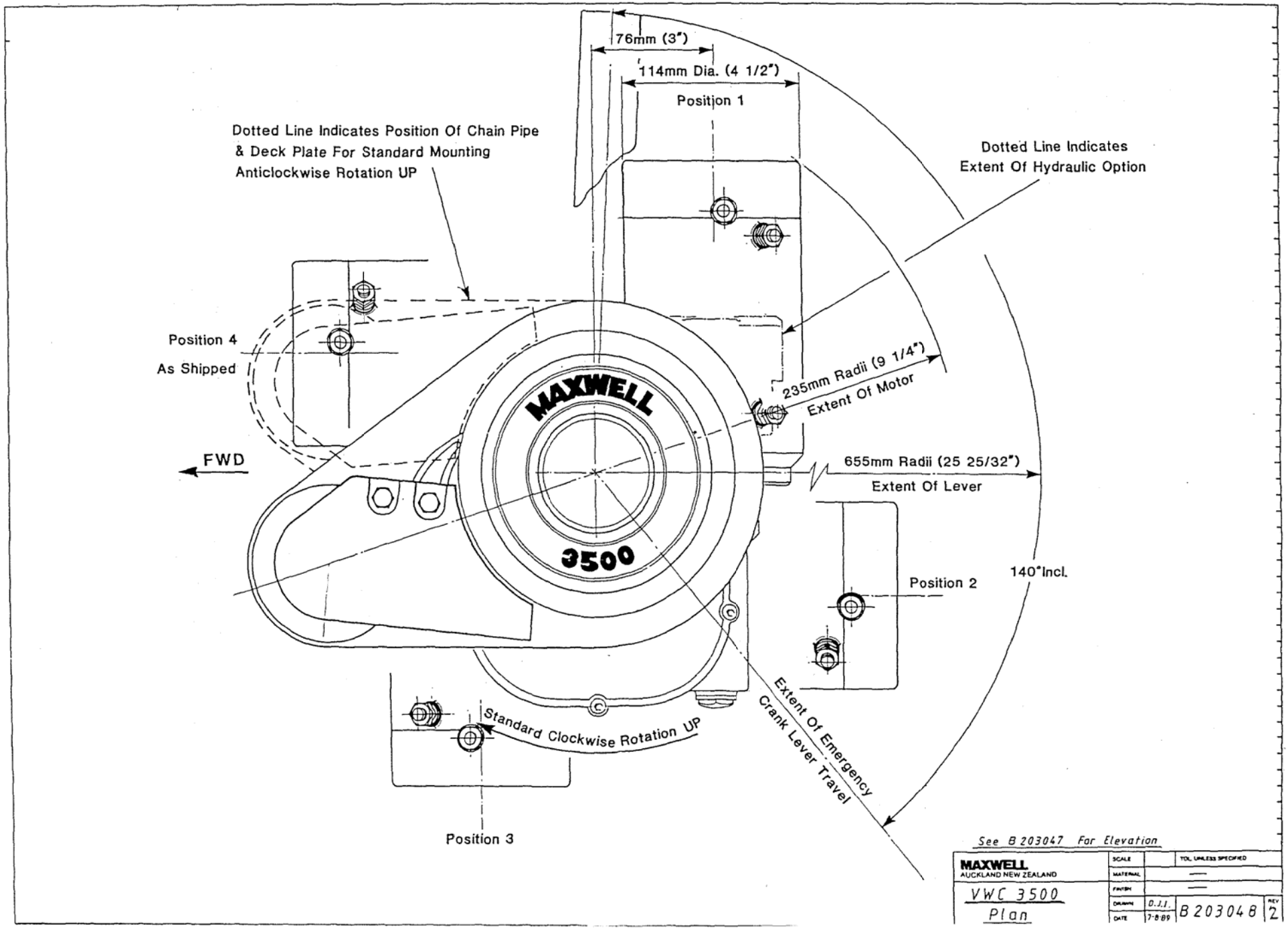
Windlass Model……..
Serial Number……
Power Supply 12V, 24V or Hydraulic
Drawing Reference Number……..
Item No……
Part No……
Description……
Quantity Required……

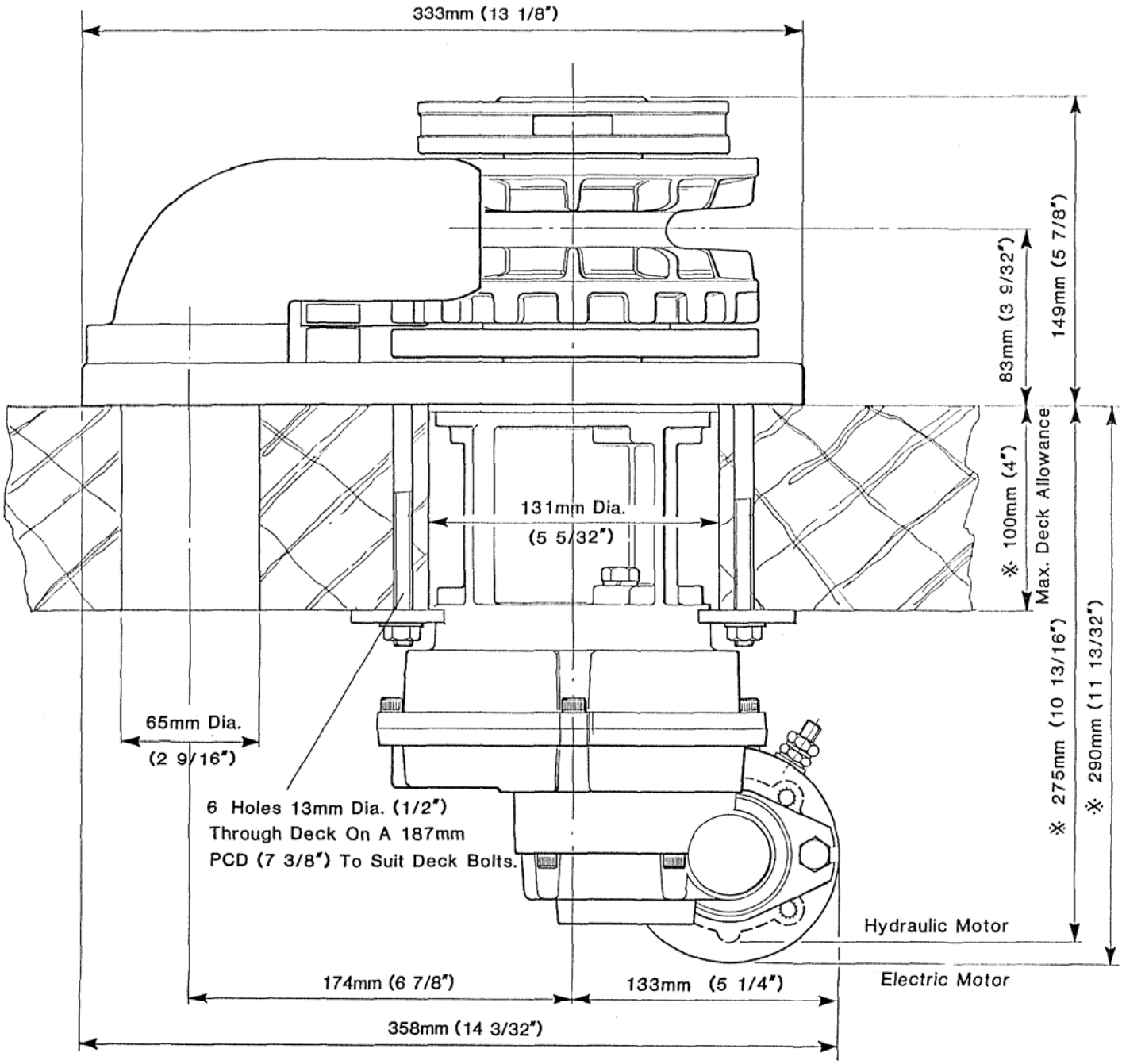


VWC 3500
ELEVATION

NOTE:- For 200mm (8") Deck Allowance Add 100mm (4") To All Dimensions Shown With ※
Motor/Gearbox Shown In Position 1
Nett Weight Inclusive Of Emergecy Lever 49.3Kg (108.46Lbs)

B 203047 | 3


76mm (3")
114mm Dia. (4 1/2")
Position 1
Dotted Line Indicates Position Of Chain Pipe
& Deck Plate For Standard Mounting
Anticlockwise Rotation UP
Dotted Line Indicates
Extent Of Hydraulic Option
Position 4
As Shipped
235mm Radii (9 1/4")
Extent Of Motor
FWD
655mm Radii (25 25/32")
Extent Of Lever
MAXWELL
3500
Position 2
140°Incl.
Standard Clockwise Rotation UP
Extent Of Emergency
Crank Lever Travel
Position 3
See B 203047 For Elevation
MAXWELL
AUCKLAND NEW ZEALAND
SCALE
TOL UNLESS SPECIFIED
MATERIAL
FINISH
DRAWN D.J.J.
DATE 7-8-89
VWC 3500
Plan
B 203048
REV 2



VWCLP 3500

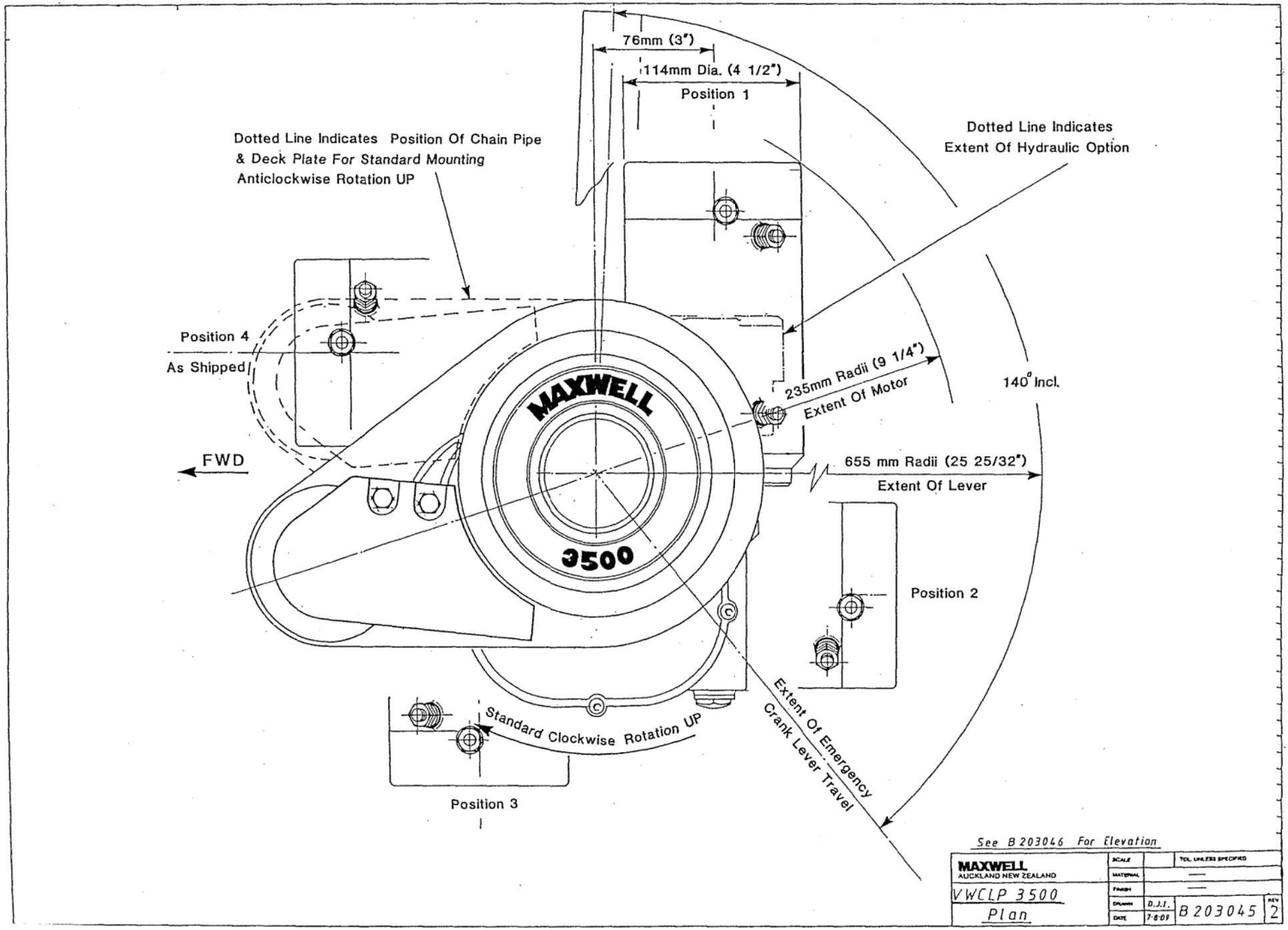
ELEVATION

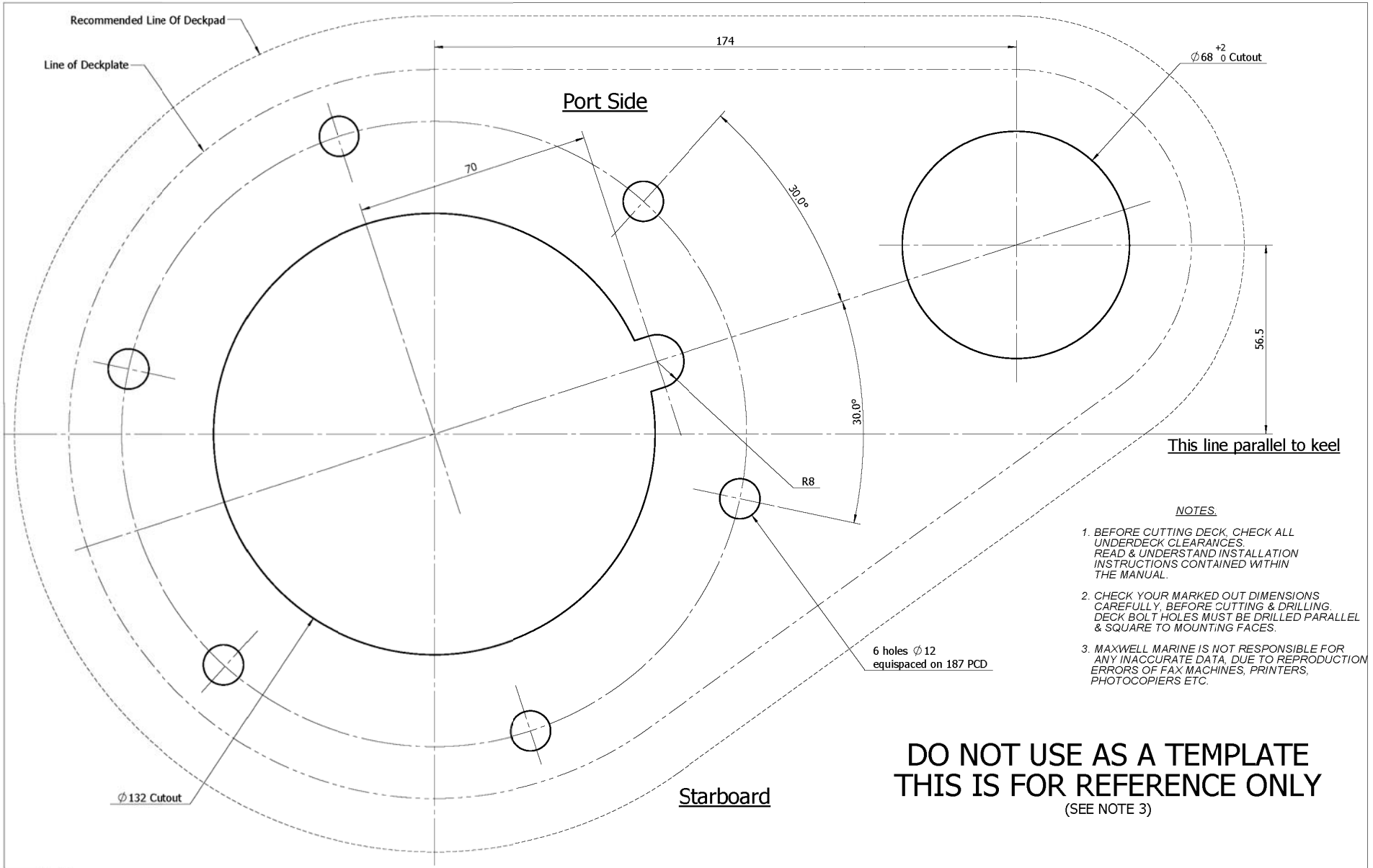
NOTE:~ For 200mm (8") Deck Allowance Add 100mm (4") To All Dimensions Shown With ※

Motor/Gearbox Shown In Position 1

Nett Weight Inclusive Of Emergency Lever 44.3Kg (97.46Lbs)

B 203046 | 3


76mm (3")
114mm Dia. (4 1/2")
Position 1
Dotted Line Indicates Position Of Chain Pipe
& Deck Plate For Standard Mounting
Anticlockwise Rotation UP
Dotted Line Indicates
Extent Of Hydraulic Option
Position 4
As Shipped
235mm Radii (9 1/4")
Extent Of Motor
140° Incl.
FWD
655 mm Radii (25 25/32")
Extent Of Lever
MAXWELL
3500
Position 2
Standard Clockwise Rotation UP
Extent Of Emergency
Crank Lever Travel
Position 3
See B 203046 For Elevation
MAXWELL
AUCKLAND NEW ZEALAND
VWCLP 3500
Plan
SCALE
MATERIAL
FINISH
DRAWN
D.J.I.
DATE
7-8-09
TOL. UNLESS SPECIFIED
B 203045
REV
2



NOTES.

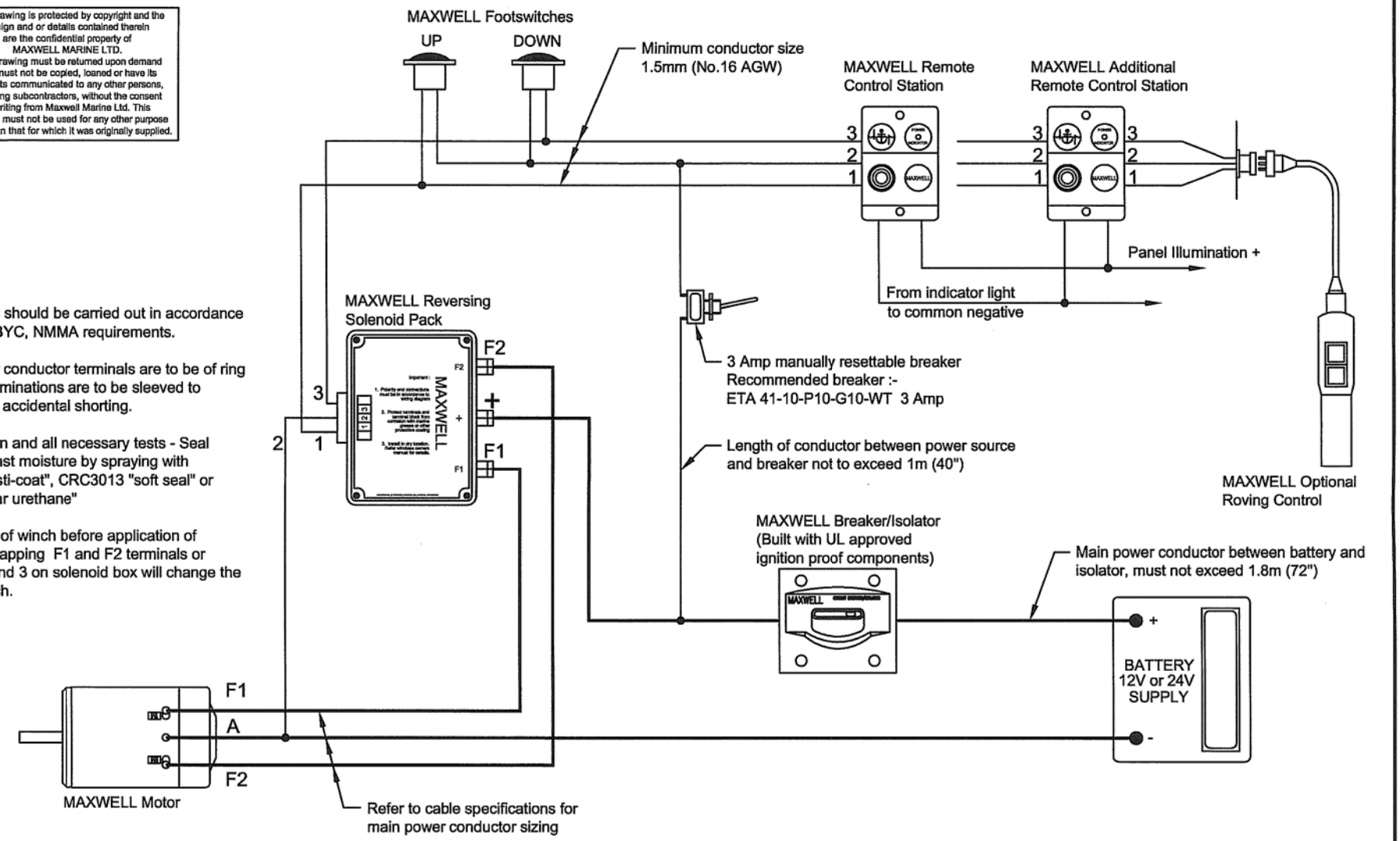
1. *BEFORE CUTTING DECK, CHECK ALL UNDERDECK CLEARANCES. READ & UNDERSTAND INSTALLATION INSTRUCTIONS CONTAINED WITHIN THE MANUAL.*
2. *CHECK YOUR MARKED OUT DIMENSIONS CAREFULLY, BEFORE CUTTING & DRILLING. DECK BOLT HOLES MUST BE DRILLED PARALLEL & SQUARE TO MOUNTING FACES.*
3. *MAXWELL MARINE IS NOT RESPONSIBLE FOR ANY INACCURATE DATA, DUE TO REPRODUCTION ERRORS OF FAX MACHINES, PRINTERS, PHOTOCOPIERS ETC.*

DO NOT USE AS A TEMPLATE
THIS IS FOR REFERENCE ONLY
(SEE NOTE 3)

Revision	Change	Made on	Des/Drawn
6.00	Issued in CAD	9/3/05	RP
7.00	Template note added. Notes revised	29/3/06	RP

Description:	Drawing No:	Revision No:
Deck Cutout Details - 3000 3500 4000 VWCLP-VWC	3338	7.00

Material:	Tolerances if none specified	Sheet Size	Sheet
N/A	0 DECIMAL (X) ±0.5 1 DECIMAL (X.X) ±0.2 2 DECIMAL (X.XX) ±0.1 ALL ANGLES ±0.5°	A3 Scale 1.1	1 of 1



Note:

All installations should be carried out in accordance with USCG, ABYC, NMMA requirements.

All main power conductor terminals are to be of ring type and all terminations are to be sleeved to protect against accidental shorting.

After installation and all necessary tests - Seal terminals against moisture by spraying with CRC2403 "plasti-coat", CRC3013 "soft seal" or CRC2409 "clear urethane"

Check rotation of winch before application of chain/rope. Swapping F1 and F2 terminals or connection 1 and 3 on solenoid box will change the rotation of winch.

Revision	Change	Made On	Des/Drawn	Checked	BVT/Dwg No.	Description	Assy No.
1.00	Initial Issue	21/7/2004	DI/RP		N/A	Wiring Diagram - Typical For Series Wound Motors	P101840
2.00	Terminal 3 routing from solenoid box corrected	25/05/2005	RP	GB	BVT View		
					N/A		
					Sheet Size / Scale		
					A4 / NTS		
					Sheet 1 of 1		

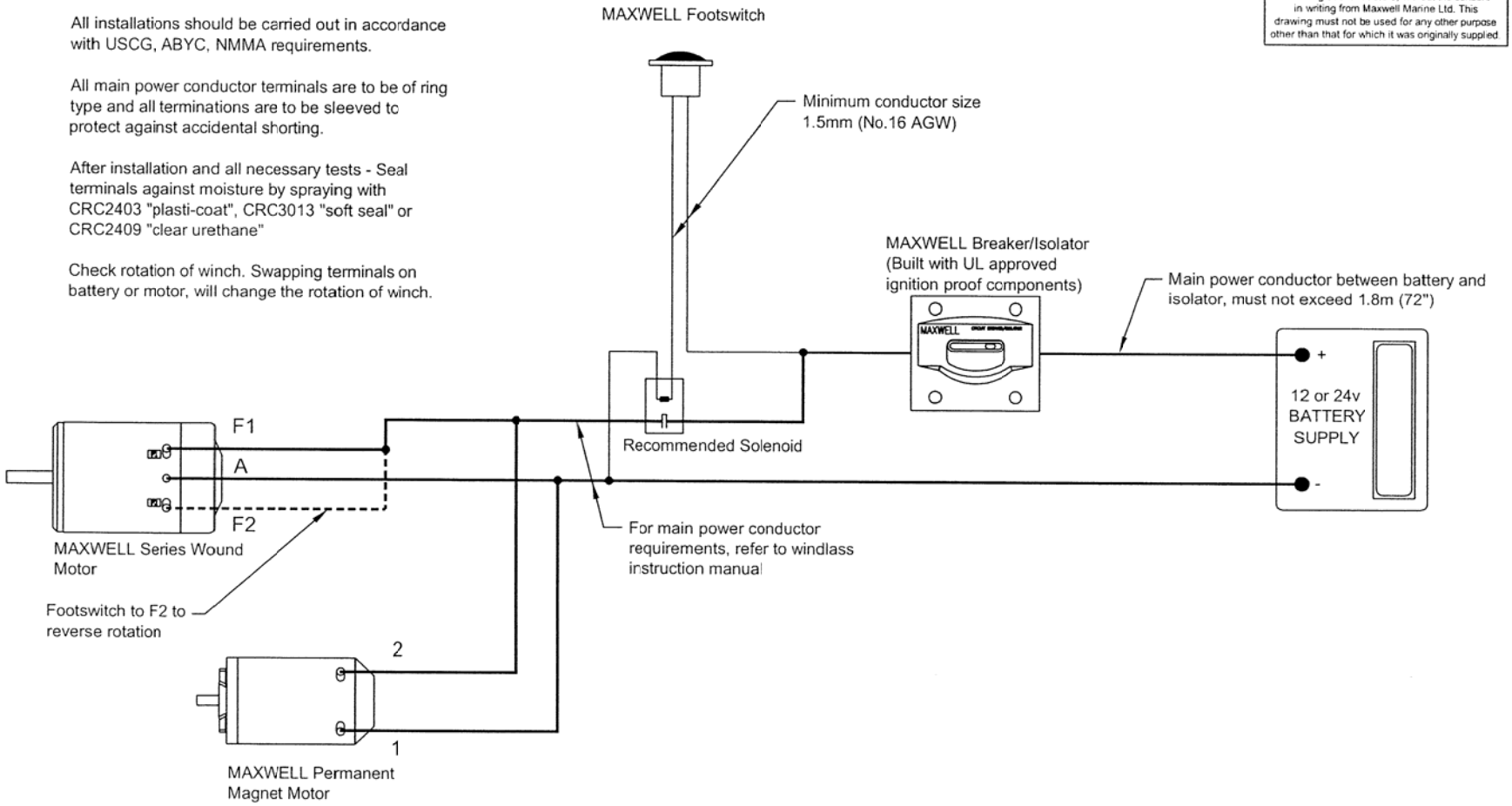
Note:

All installations should be carried out in accordance with USCG, ABYC, NMMA requirements.

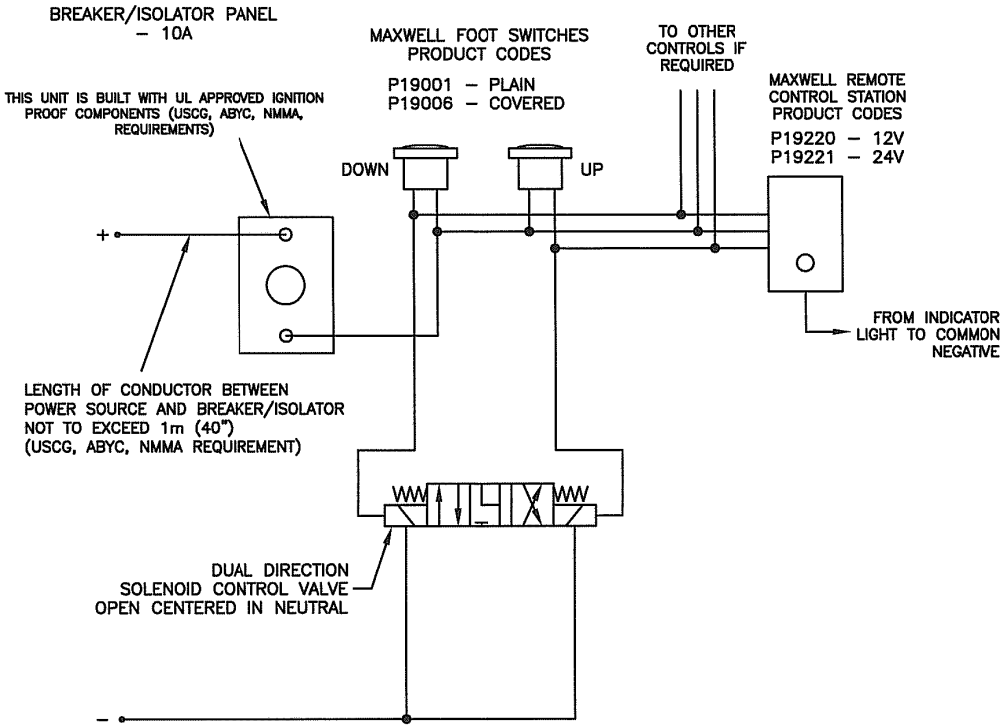
All main power conductor terminals are to be of ring type and all terminations are to be sleeved to protect against accidental shorting.

After installation and all necessary tests - Seal terminals against moisture by spraying with CRC2403 "plasti-coat", CRC3013 "soft seal" or CRC2409 "clear urethane"

Check rotation of winch. Swapping terminals on battery or motor, will change the rotation of winch.



Revision	Change	Made On	Des/Drawn	BVT/Dwg No.	Description	Assy No.
1.00	Initial Issue	21/7/04	DI/RP	N/A	Wiring Diagram - Typical For Single Direction	P101844
				BVT View		
				N/A		
				Sheet Size / Scale		
				A4 / NTS		
				Sheet 1 of 1		



MINIMUM CONDUCTOR SIZE 1.5mm² (AWG 16)
(USCG, ABYC, NMMA REQUIREMENT)

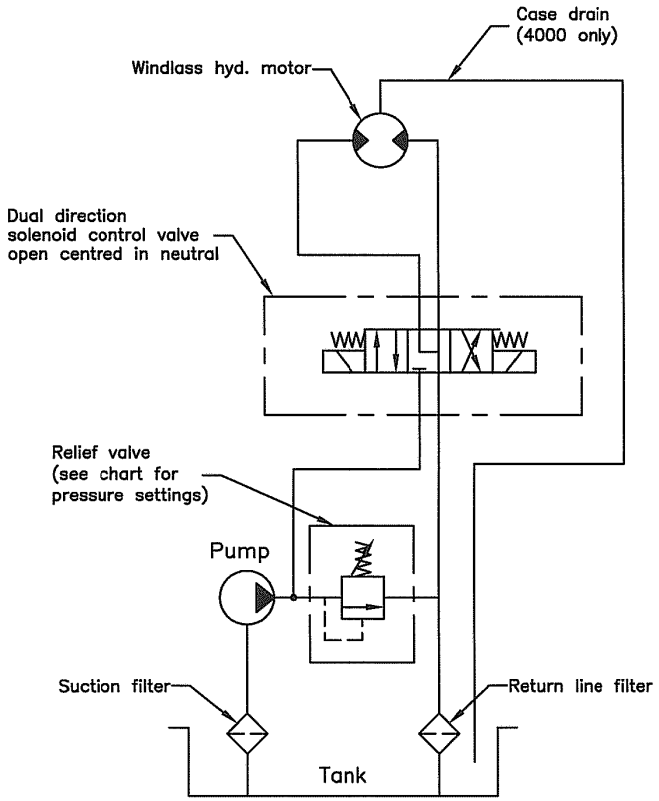
ALL INSTALLATIONS SHOULD BE CARRIED OUT IN ACCORDANCE WITH USCG, ABYC, NMMA, OR CLASSIFICATION SOCIETY REQUIREMENTS.

Rev.	Description	Date	Name	Checked
3.00	Removed clutch relay	29/04/03	DRW	
4.00	Control Station Codes corrected	07/06/07	RP	JE

ELECTRIC CONTROL WIRING DIAGRAM FOR HYDRAULIC WINDLASSES

MAXWELL WINCHES LTD.
AUCKLAND NEW ZEALAND

P101821



Windlass			Recommended flow		Relief valve pressure setting	
Series	Motor		l/min	US gal/min	PSI	bar
1000	P14366	GRESEN MGG2–16	20	5.3	1450	100
1500	P14366	GRESEN MGG2–16	20	5.3	2000	138
2200	P14369	GRESEN MGG2–30	36	9.5	1800	124
2500	P14368	GRESEN MGG2–25	32	8.5	2000	138
Liberty	P14368	GRESEN MGG2–25	32	8.5	2000	138
3500	P14368	GRESEN MGG2–25	40	11	2000	138
4000	SP2250	Galtech 2SM–A–19	50	13.2	1500	103

Chart refers to MAXWELL "standard build". Lower flow or lower pressure can be accommodated – refer to manual or consult MAXWELL.

Ensure that selected hydraulic components are adequate for recommended flow rate.

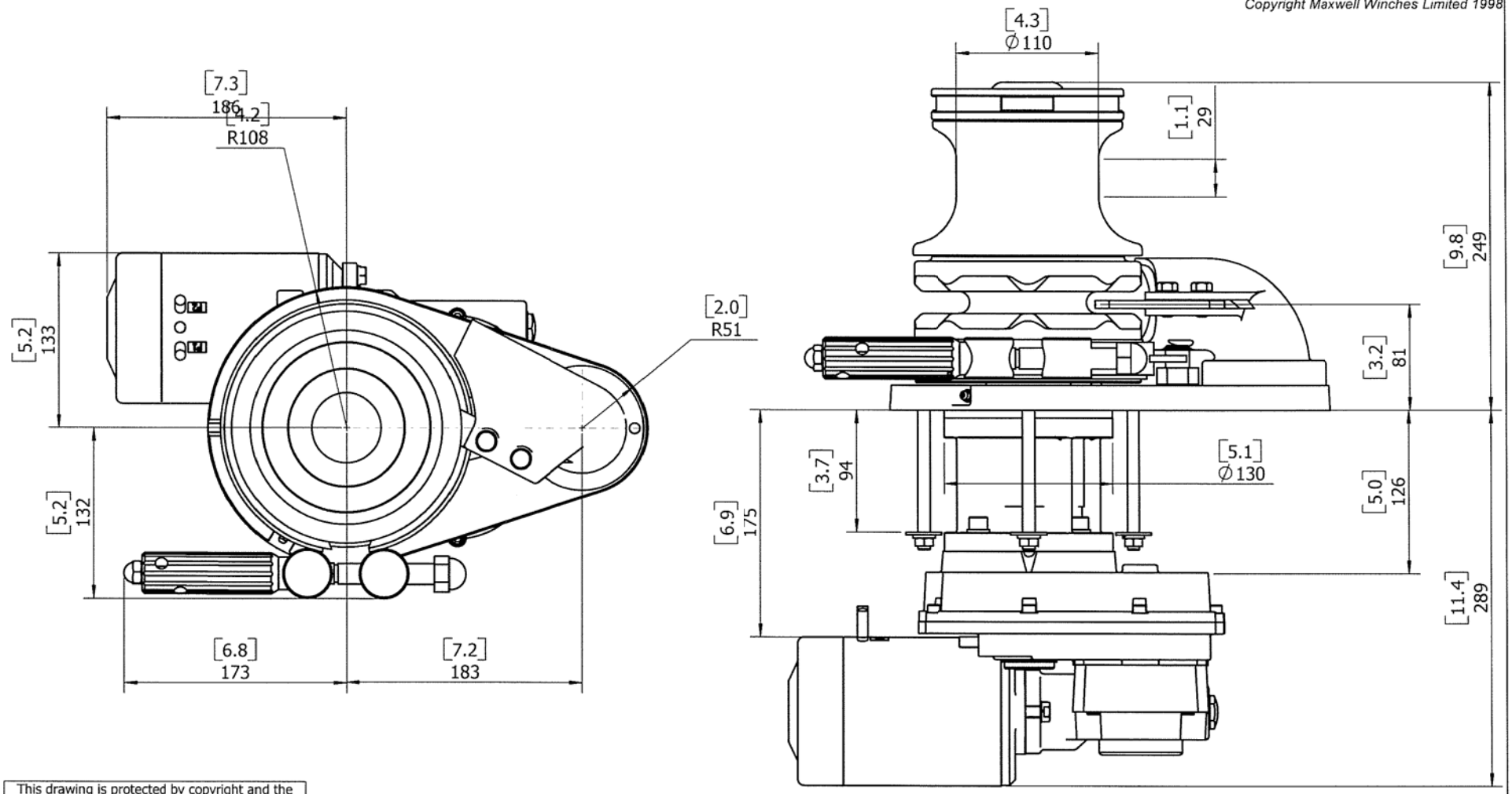
Case drain can only connect to return line if return line pressure is below 25 PSI. Oherwise case drain must connect to tank

Revision	Description	Date	Name
7.00	Removed pressure switch, Added liberty	29/04/03	DRW
8.00	Directional control valve changed back	22/10/04	JE
9.00	4000 motor changed from SP2224 to SP2250	20/03/07	JE

HYDRAULIC SCHEMATIC
WINDLASSES
1000 – 4000

MAXWELL WINCHES LTD.
AUCKLAND NEW ZEALAND

P101820

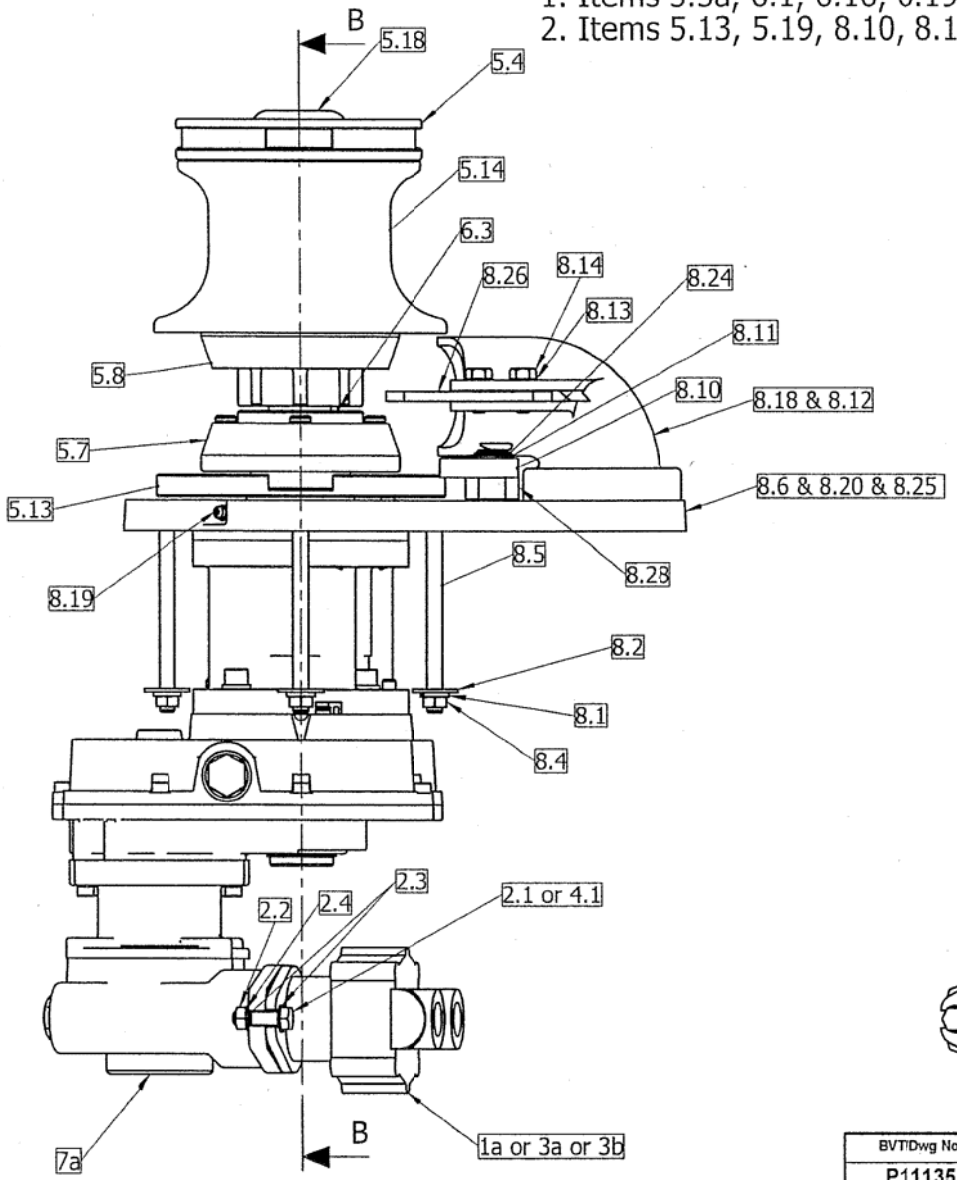


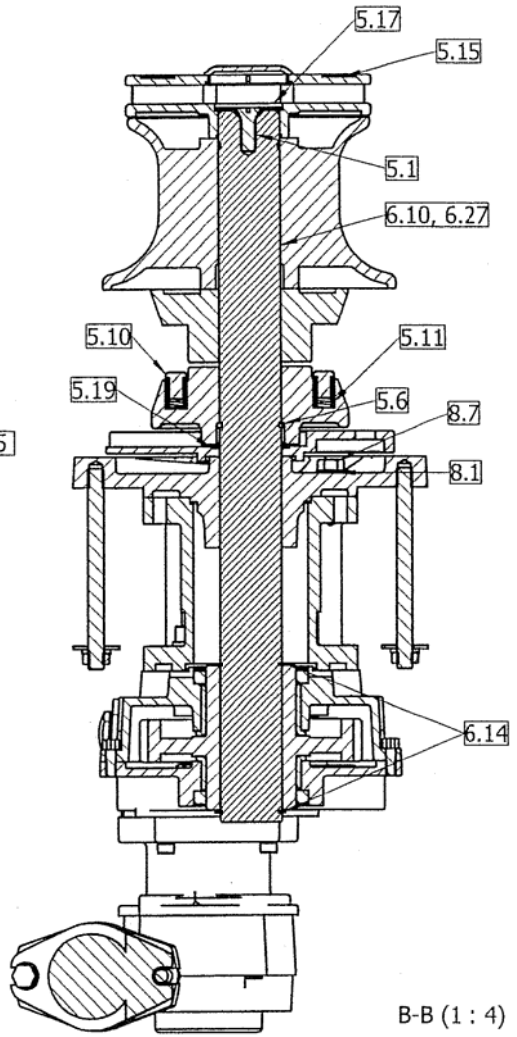
Revision	Change	Made on	Des/Drawn
16.00	Updated in CAD , Band brakeversions are new builds	11/04/2003	JE

MAXWELL

BVT/Dwg No.	Description	Assy No.
	VWC 3500 12VDC 100 TDC CW BB	P102462
BVT View		
Sheet Size: A4	Scale: 1:4	
Sheet 1 of 1		

Notes:
1. Items 5.5a, 6.1, 6.16, 6.19, 6.24 not shown
2. Items 5.13, 5.19, 8.10, 8.11 & 8.24 not used on Brake band versions





B-B (1 : 4)

Revision	Change	Made on	Des/Drawn
1.00	Initial issue	18/04/1988	GSM
16.00	Updated in CAD, Band brake versions are new builds	18/03/2003	JTE

BVTIDwg No.	
P11135	
BVT View	
ACW 100TDC DC &HYD	
Sheet Size	Scale
A4	1:1
Sheet 1 of 1	

Description	Assy No.
VWC 3500 12VDC 100 TDC ACW	P11135
VWC 3500 24VDC 100 TDC ACW	P11136
VWC 3500 HYD 100 TDC ACW	P14077
VWC 3500 12VDC 100 TDC ACW BB	P102463
VWC 3500 24VDC 100 TDC ACW BB	P102465
VWC 3500 HYD 100 TDC ACW BB	P102467

VWC 3500 and similar varitions

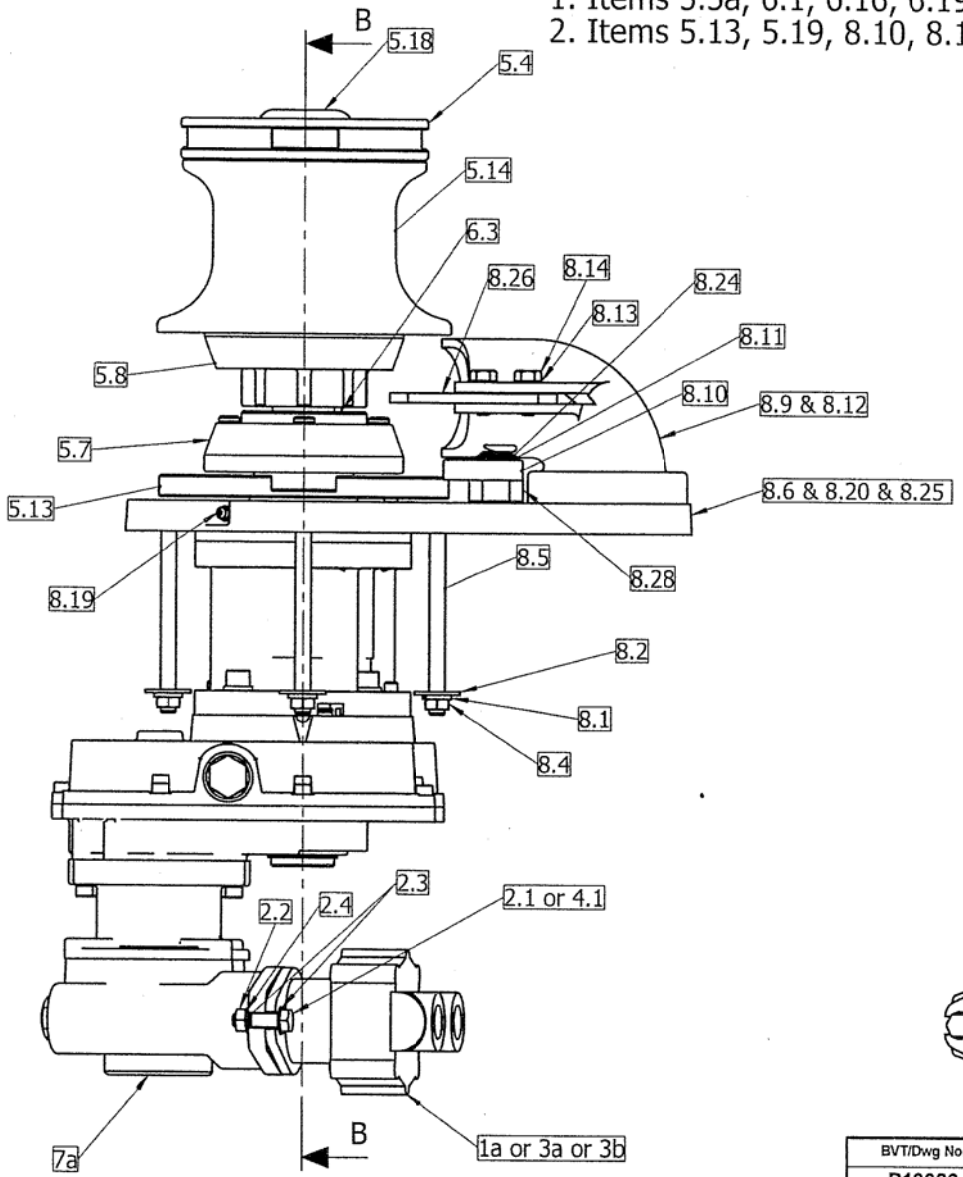
Revision 16.00

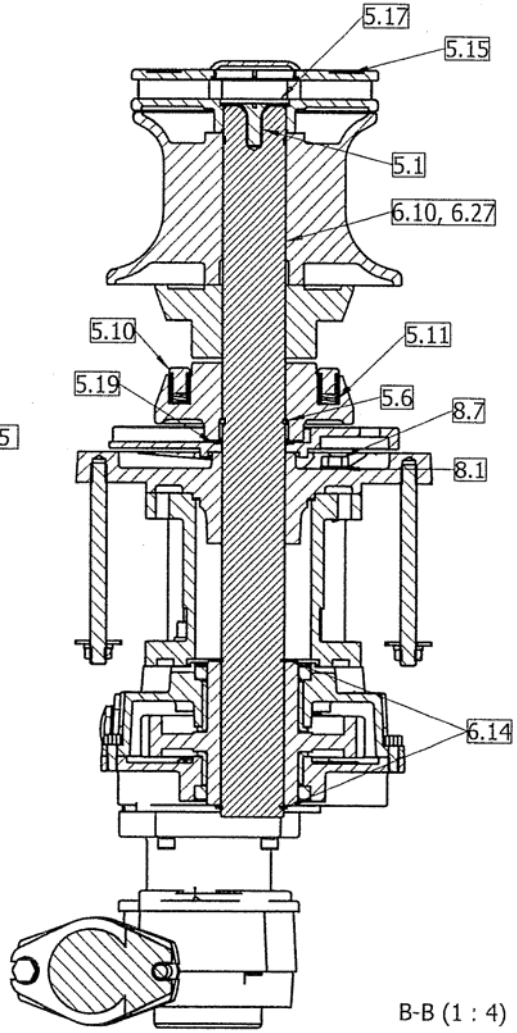
Variances from 16.00

Created at 5/11/200209:06:36

				P11135		P11136	
#	Component Number	Revision	Component Description	VWC 3500 12V DC 100 TDC acw		VWC 3500 24V DC 100 TDC acw	
1a	P14368	2.00	Hyd motor assembly Gresen 200-25				
2.1	SP0279	1.00	M8 x 30 SS hex head bolt				
2.2	SP0366	1.00	M8 SS hex nut				
2.3	SP0413	1.00	5-16 x 5-8 OD washer				
2.4	SP0467	1.00	M8 spring washer				
2.5	SP0820	1.00	bag minigrip 62 x 75				
2.6	5326	1.00	Sticker - Hydraulic motor bolt kit for P12488				
3a	P11165	2.00	Cima Motor - 12v 1200w	1			
3b	P11166	2.00	Cima Motor - 24V 1200W			1	
5.1	SP0040	1.00	3-8 x 1 CSK screw	1		1	
5.4	3181C	11.00	Clutch Nut - chromed	1		1	
5.5a	P20040	2.00	Emergency Crank Lever	1		1	
5.6	2311	3.00	clutch retataining clip	2		2	
5.7	3184M	12.00	Cone clutch inner - 2200 3500 4000 - Machined	1		1	
5.8	4304	3.00	clutch cone outer	1		1	
5.10	3569	2.00	plunger	4		4	
5.11	3570	2.00	Plunger Spring	4		4	
5.13	3158A	5.00	Emergency Crank Collar - anodised	1		1	
5.14	2304C	5.00	drum 3500	1		1	
5.15	3856	1.00	label 3500 series	1		1	
5.17	3267	2.00	retaining washer	1		1	
5.18	3227	2.00	Cap 2200 2500 3500	1		1	
5.19	SP0468	1.00	Wave spring washer SSR-0187-s17	1		1	
6.1	70	1.00	Insert top - polystirene	1		1	
6.3	3207	1.00	key	2		2	
6.6	3219	7.00	mainshaft VWC 3500 8in. TDC				
6.7	4388	3.00	12 x 8 key				
6.8	5674	1.00	Main shaft VWC 3500 AC				
6.10	3171	8.00	mainshaft 3500 VWC	1		1	
6.14	SP0846	1.00	circlip external 1-5in	2		2	
6.16	71	1.00	Insert bottom - polystirene	1		1	
6.19	P190073	1.00	Manual VWC 3500 DC hyd	1		1	
6.20	P19133	1.00	Manual - VWC 3500 AC				
6.23	300	2.00	crate VWC 3500 1050x475x400				
6.24	59	1.00	carton 2200 2500 3500	1		1	
6.27	3150	2.00	key 3-8in sq	1		1	
7a	P12070	2.00	Gearbox & spacer tube assy - 3500 DC-hyd 100 TDC	1		1	
7b	P12071	2.00	Gearbox & spacer tube assy - 3500 DC-hyd 200 TDC				
7d	P102609	2.00	Motor & gearbox - 3500 series 400V 50Hz				
7e	P102610	2.00	Motor & gearbox - 3500 series 208V 60Hz				
8.1	SP0457	1.00	3-8 spring washer	10		10	
8.2	3843	1.00	washer 28 x 10 x 2	6		6	
8.4	SP0322	1.00	3-8 SS nut hex	6		6	
8.5	3174	6.00	stud 4in tdc	6		6	
8.6	4556	2.00	stop pin	1		1	
8.7	SP0287	1.00	3-8 x 1 1-4 SS hex head bolt	4		4	
8.9	3191C	5.00	Chain pipe CW - 3500 series chromed				
8.10	2324C	1.00	pawl 3000 4000 - chromed	1		1	
8.11	SP0463	1.00	Wave spring washer SSR-0100-s17	1		1	
8.12	SP0167	1.00	Cap screw M8 x 20	4		4	
8.13	SP0413	1.00	5-16 x 5-8 OD washer	2		2	
8.14	SP0254	1.00	M8 x 20 SS hex head bolt	2		2	
8.15	3217	2.00	3-8unc stud				
8.18	3192C	5.00	Chain pipe ACW - 3500 series chromed	1		1	
8.19	2048	1.00	grease nipple	1		1	
8.20	1506C	10.00	Deck plate - VWC 3500 chromed	1		1	
8.24	SP0871	1.00	Spiral retaining ring WSM-75-5-16	1		1	
8.25	3205	3.00	Plug VWC 2000 3500	1		1	
8.26	1509	2.00	stripper arm	1		1	
8.28	3435	5.00	Pawl pin V3500 series	1		1	

Notes:
1. Items 5.5a, 6.1, 6.16, 6.19, 6.24 not shown
2. Items 5.13, 5.19, 8.10, 8.11 & 8.24 not used on Brake band versions





B-B (1 : 4)

Revision	Change	Made on	Des/Drawn
1.00	Initial issue	18/04/1988	GSM
16.00	Updated in CAD, Band brake versions are new builds	18/03/2003	JTE

BVT/Dwg No.	
P10086	
BVT View	
CW 100TDC DC &HYD	
Sheet Size	Scale
A4	1:1
Sheet 1 of 1	

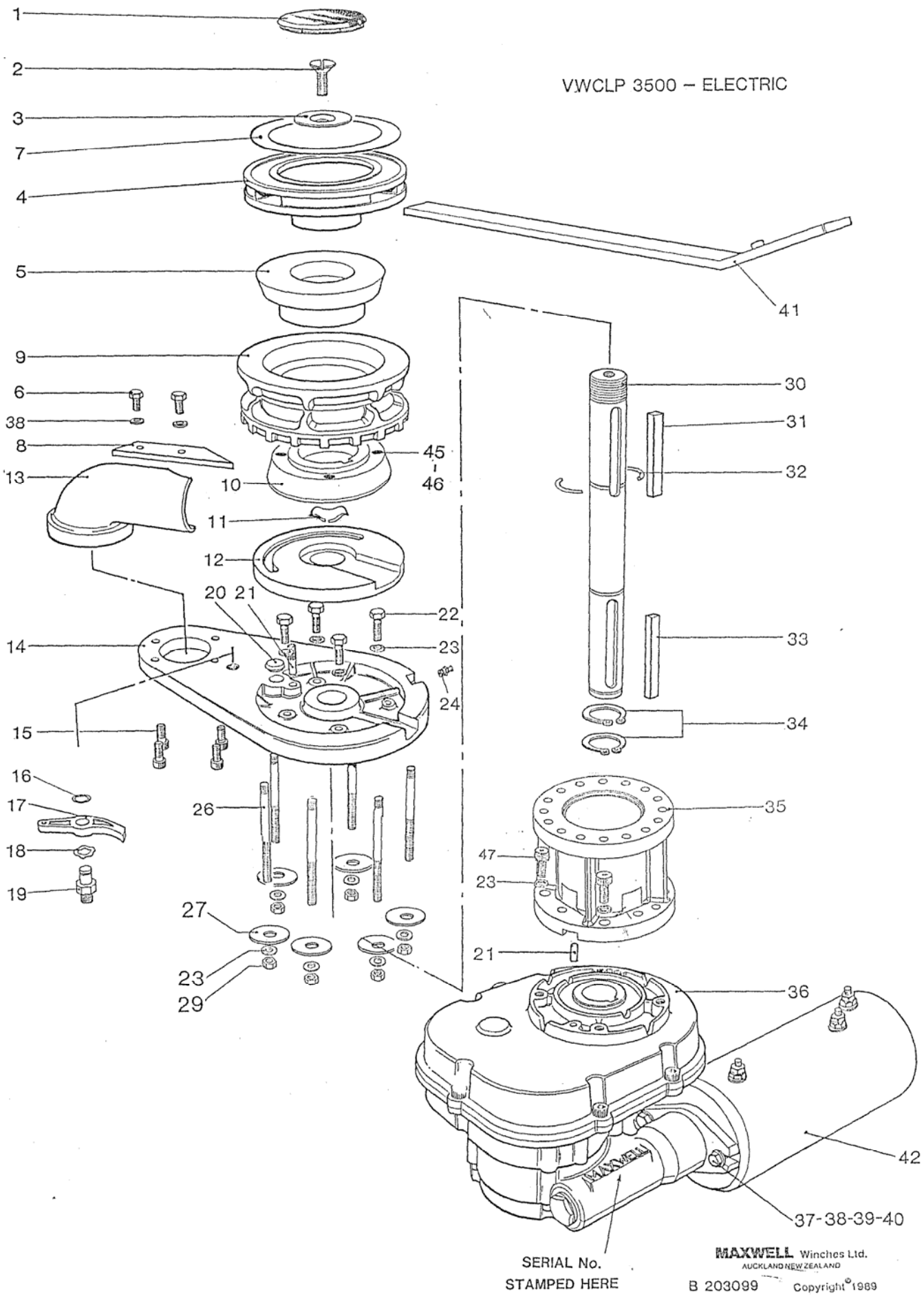
Description	Assy No.
VWC 3500 12VDC 100 TDC CW	P10086
VWC 3500 24VDC 100 TDC CW	P10088
VWC 3500 HYD 100 TDC CW	P14076
VWC 3500 12VDC 100 TDC CW BB	P102462
VWC 3500 24VDC 100 TDC CW BB	P102464
VWC 3500 HYD 100 TDC CW BB	P102466

VWC 3500 and similar varitions

Revision 16.00

Variances from 16.00 *Created at 5/11/200209:06:36*

				P10086		P10088		P14076	
				VWC 3500 12V DC 100 TDC CW		VWC 3500 24V DC 100 TDC CW		VWC 3500 hydraulic 100 TDC CW	
1a	P14368	2.00	Hyd motor assembly Gresen 200-25					1	
2.1	SP0279	1.00	M8 x 30 SS hex head bolt					2	
2.2	SP0366	1.00	M8 SS hex nut					2	
2.3	SP0413	1.00	5-16 x 5-8 OD washer					4	
2.4	SP0467	1.00	M8 spring washer					2	
3a	P11165	2.00	Cima Motor - 12v 1200w	1					
3b	P11166	2.00	Cima Motor - 24V 1200W			1			
4.1	SP0288	1.00	M8 x 25 SS bolt	2		2			
5.1	SP0040	1.00	3-8 x 1 CSK screw	1		1		1	
5.4	3181C	11.00	Clutch Nut - chromed	1		1		1	
5.5a	P20040	2.00	Emergency Crank Lever	1		1		1	
5.6	2311	3.00	clutch retataining clip	2		2		2	
5.7	3184M	12.00	Cone clutch inner - 2200 3500 4000 - Machined	1		1		1	
5.8	4304	3.00	clutch cone outer	1		1		1	
5.10	3569	2.00	plunger	4		4		4	
5.11	3570	2.00	Plunger Spring	4		4		4	
5.13	3158A	5.00	Emergency Crank Collar - anodised	1		1		1	
5.14	2304C	5.00	drum 3500	1		1		1	
5.15	3856	1.00	label 3500 series	1		1		1	
5.17	3267	2.00	retaining washer	1		1		1	
5.18	3227	2.00	Cap 2200 2500 3500	1		1		1	
5.19	SP0468	1.00	Wave spring washer SSR-0187-s17	1		1		1	
6.1	70	1.00	Insert top - polystirene	1		1		1	
6.3	3207	1.00	key	2		2		2	
6.10	3171	8.00	mainshaft 3500 VWC	1		1		1	
6.14	SP0846	1.00	circlip external 1-5in	2		2		2	
6.16	71	1.00	Insert bottom - polystirene	1		1		1	
6.19	P190073	1.00	Manual VWC 3500 DC hyd	1		1		1	
6.24	59	1.00	carton 2200 2500 3500	1		1		1	
6.27	3150	2.00	key 3-8in sq	1		1		1	
7a	P12070	2.00	Gearbox & spacer tube assy - 3500 DC-hyd 100 TDC	1		1		1	
8.1	SP0457	1.00	3-8 spring washer	10		10		10	
8.2	3843	1.00	washer 28 x 10 x 2	6		6		6	
8.4	SP0322	1.00	3-8 SS nut hex	6		6		6	
8.5	3174	6.00	stud 4in tdc	6		6		6	
8.6	4556	2.00	stop pin	1		1		1	
8.7	SP0287	1.00	3-8 x 1 1-4 SS hex head bolt	4		4		4	
8.9	3191C	5.00	Chain pipe CW - 3500 series chromed	1		1		1	
8.10	2324C	1.00	pawl 3000 4000 - chromed	1		1		1	
8.11	SP0463	1.00	Wave spring washer SSR-0100-s17	1		1		1	
8.12	SP0167	1.00	Cap screw M8 x 20	4		4		4	
8.13	SP0413	1.00	5-16 x 5-8 OD washer	2		2		2	
8.14	SP0254	1.00	M8 x 20 SS hex head bolt	2		2		2	
8.19	2048	1.00	grease nipple	1		1		1	
8.20	1506C	10.00	Deck plate - VWC 3500 chromed	1		1		1	
8.24	SP0871	1.00	Spiral retaining ring WSM-75-5-16	1		1		1	
8.25	3205	3.00	Plug VWC 2000 3500	1		1		1	
8.26	1509	2.00	stripper arm	1		1		1	
8.28	3435	5.00	Pawl pin V3500 series	1		1		1	


VWCLP 3500 – ELECTRIC
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SERIAL No.
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MAXWELL Winches Ltd.
AUCKLAND NEW ZEALAND
B 203099
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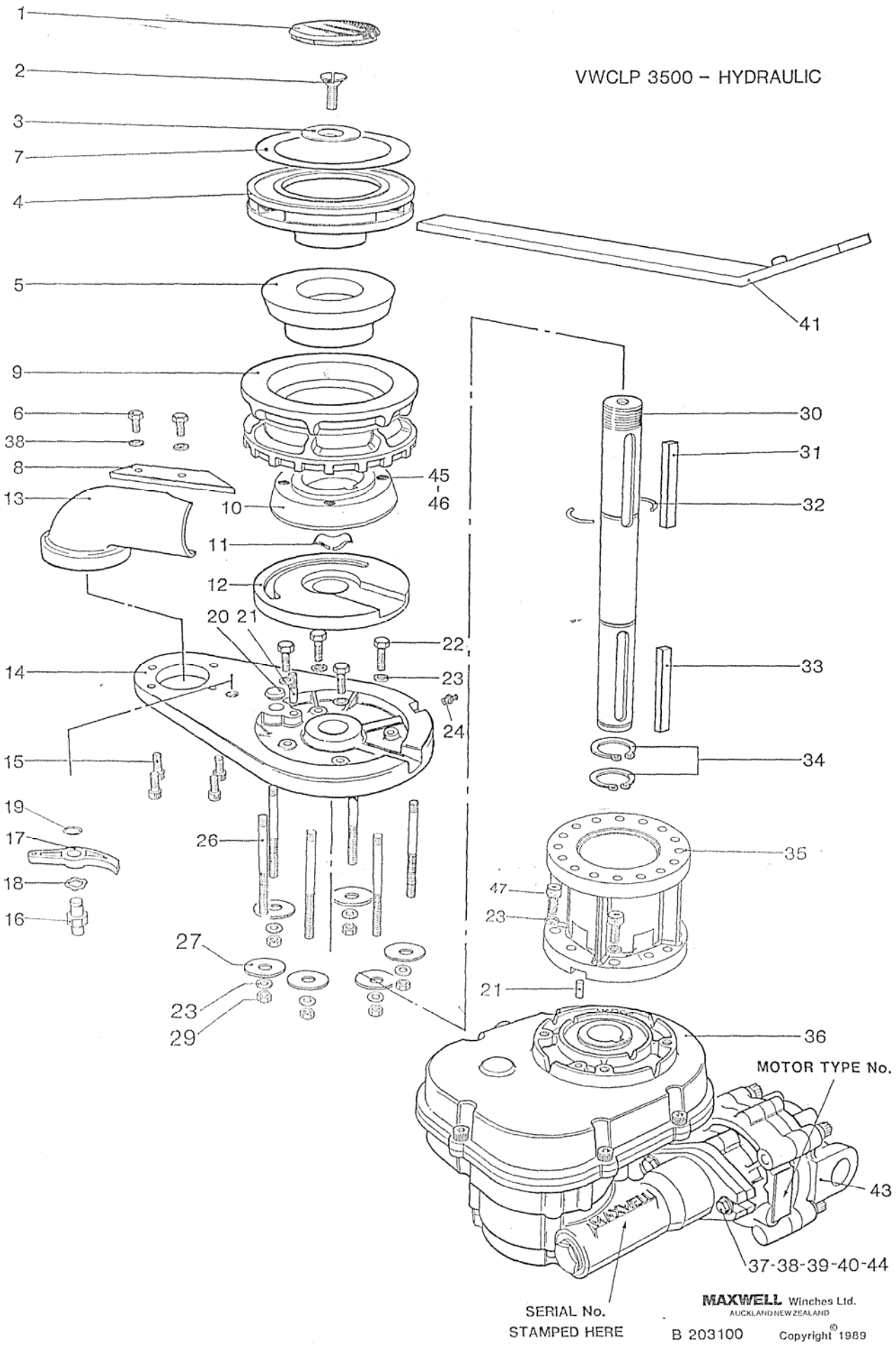
VWCLP 3500 ELECTRIC B203099

ITEM	PART NO.	DESCRIPTION	QTY
1	E3227	CAP	1
2	SP40	SCREW - CSK ST. ST. 3/8” x 1” LG	1
3	E3267	RETAINING WASHER	1
4	C3181	CLUTCH NUT	1
5	D3185	CLUTCH CONE - OUTER	1
6	SP254	BOLT - HEX HD M8 X 20 LG ST. ST.	2
7	E3856	LABEL	1
8	E1509	STRIPPER ARM	1
9	C3182	CHAINWHEEL	1
10	C3184	CLUTCH CONE INNER	1
11	SP468	WAVE SPRING WASHER SSR-0187-S17	1
12	C3158	EMERGENCY CRANK COLLAR	1
13/A	C3191	CHAINPIPE - CLOCKWISE UP - STANDARD AS SHOWN	1
13/B	C3192	CHAINPIPE - ANTICLOCKWISE - OPTIONAL	1
14	B1506	DECK PLATE	1
15	SP167	CAP SCREW SOC. HD. M8 X 20 LG ST.ST.	4
16	E3435	PAWL PIN	1
17	E2324	PAWL	1
18	SP463	WAVE SPRING WASHER SSR-0100-S17	1
19	SP871	SPIRAL RETAINING WASHER	1
20	E3205	PLUG	1
21	E3188	STOP PIN	1
22	SP287	BOLT - HEX HD 3/8” x 1 ¼” LG ST.ST.	4
23	SP457	WASHER - SPRING 3/8” ST.ST.	14
24	E2048	GREASE NIPPLE	1
25	E3175	DOWEL	3
26/A	E3174	STUD (4” TDC)	6
26/B	E3217	STUD (8” TDC)	6
27	SP423	WASHER	6
28	-		
29	SP322	NUT - HEX 3/8” ST. ST.	6
30/A	C3206	MAINSHAFT (4” TDC)	1
30/B	C3218	MAINSHAFT	1
31	E3207	KEY	1
32	E2311	CLUTCH RETAINING CIRCLIP	1
33	E3150	KEY	1
34	SP846	CIRCLIP - EXT. DIAM. 1 ½” Shaft ST. ST.	2
35/A	C3169	SPACER TUBE (4” TDC)	1
35/B	C3204	SPACER TUBE (8” TDC)	1
36	P12063	GEARBOX ASSY	1
37	SP288	BOLT - HEX HD M8 x 25LG ST. ST.	2
38	SP413	WASHER - 5/16” ST. ST	4
39	SP467	WASHER - SPRING 8mm ST. ST.	2
40	SP530	ROLL PIN	1
41	P20040	EMERGENCY CRANK LEVER	1
42/A	P10156	MOTOR 12 V	1
42/B	P10157	MOTOR 24V	1
43	-		
44	-		
45	E3569	PLUNGER	4
46	E3570	SPRING	4
47	SP2484	CAP SCREW	4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MOTOR TYPE No.
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SERIAL No.
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AUCKLAND NEW ZEALAND
B 203100
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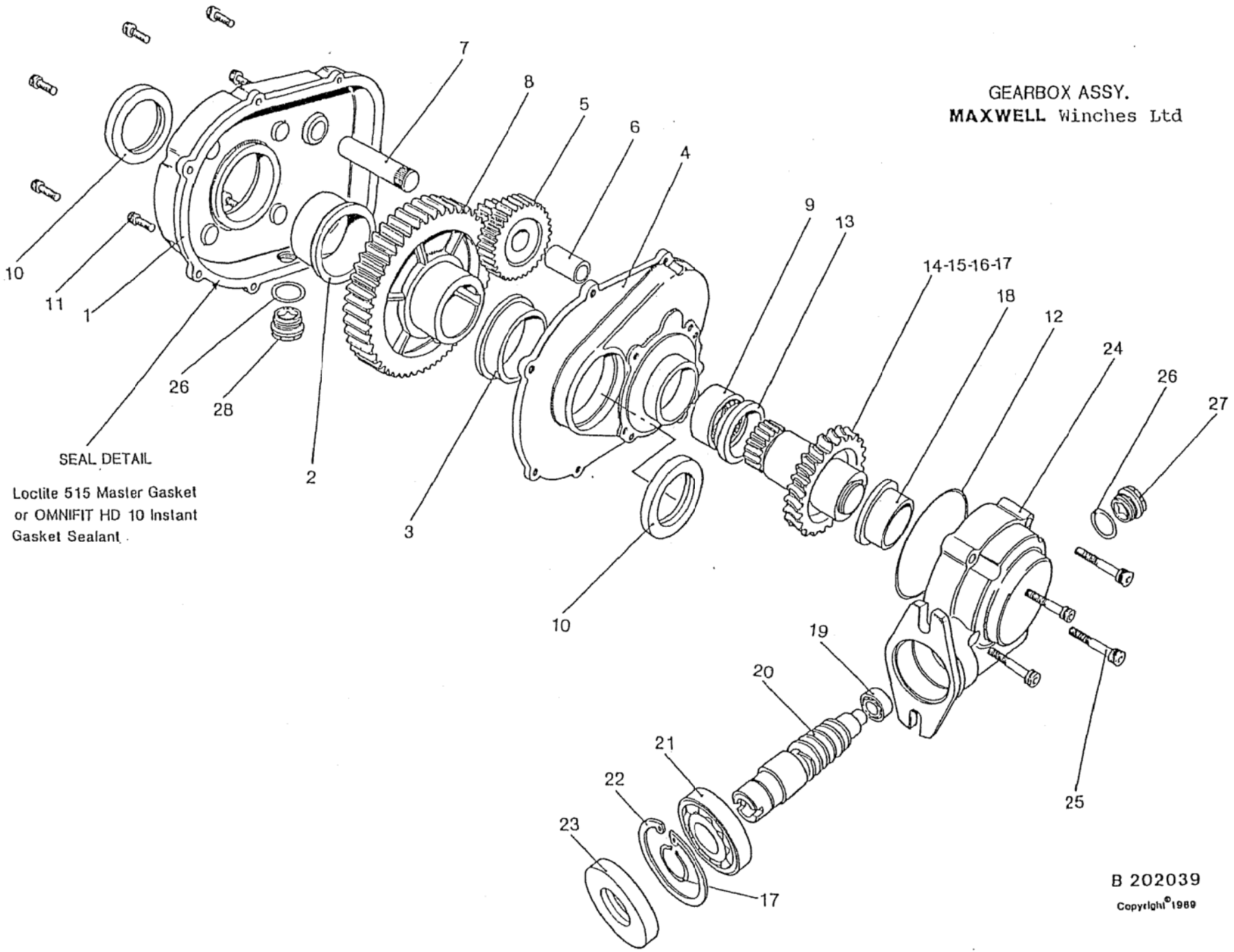
VWCLP 3500 HYDRAULIC B203100

ITEM	PART NO.	DESCRIPTION	QTY
1	E3227	CAP	1
2	SP40	SCREW - CSK ST. ST. 3/8” x 1” LG	1
3	E3267	RETAINING WASHER	1
4	C3181	CLUTCH NUT	1
5	D3185	CLUTCH CONE - OUTER	1
6	SP254	BOLT - HEX HD M8 X 20 LG ST. ST.	2
7	E3856	LABEL	1
8	E1509	STRIPPER ARM	1
9	C3182	CHAINWHEEL	1
10	C3184	CLUTCH CONE INNER	1
11	SP468	WAVE SPRING WASHER SSR-0187-S17	1
12	C3158	EMERGENCY CRANK COLLAR	1
13/A	C3191	CHAINPIPE - CLOCKWISE UP - STANDARD AS SHOWN	1
13/B	C3192	CHAINPIPE - ANTICLOCKWISE - OPTIONAL	1
14	B1506	DECK PLATE	1
15	SP167	CAP SCREW SOC. HD. M8 X 20 LG ST.ST.	4
16	E3435	PAWL PIN	1
17	E2324	PAWL	1
18	SP463	WAVE SPRING WASHER SSR-0100-S17	1
19	SP871	SPIRAL RETAINING WASHER	1
20	E3205	PLUG	1
21	E3188	STOP PIN	1
22	SP287	BOLT - HEX HD 3/8” x 1 ¼” LG ST.ST.	4
23	SP457	WASHER - SPRING 3/8” ST. ST.	14
24	E2048	GREASE NIPPLE	1
25	E3175	DOWEL	3
26/A	E3174	STUD (4” TDC)	6
26/B	E3217	STUD (8” TDC)	6
27	SP423	WASHER	6
28	-		
29	SP322	NUT - HEX 3/8” ST. ST.	6
30/A	C3206	MAINSHAFT (4” TDC)	1
30/B	C3218	MAINSHAFT (8” TDC)	1
31	E3207	KEY	1
32	E2311	CLUTCH RETAINING CIRCLIP	1
33	E3150	KEY	1
34	SP846	CIRCLIP - EXT. DIAM. 1 ½” Shaft ST. ST.	2
35/A	C3169	SPACER TUBE (4” TDC)	1
35/B	C3204	SPACER TUBE (8” TDC)	1
36	P12063	GEARBOX ASSY	1
37	SP279	BOLT	2
38	SP413	WASHER - 5/16” ST. ST	6
39	SP467	WASHER - SPRING 8mm ST. ST.	2
40	SP530	ROLL PIN	1
41	P20040	EMERGENCY CRANK LEVER	1
42	-		
43*	P14368	MOTOR HYDRAULIC (STANDARD MGG - 200-25)	1
44	SP366	NUT - HEX M8 ST. ST.	2
45	E3569	PLUNGER	4
46	E3570	SPRING	4
47	SP2484	CAP SCREW	

* OPTIONAL (SEE SPECIFICATIONS)
P14367 = MGG - 200-20 P14366 = MGG - 200-16 P14365 = MGG - 200-10


GEARBOX ASSY.
MAXWELL Winches Ltd
SEAL DETAIL
Loctite 515 Master Gasket
or OMNIFIT HD 10 Instant
Gasket Sealant
B 202039
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GEARBOX ASSY

B202039

ITEM	PART NO.	DESCRIPTION	QTY
1	B3135	GEARCASE - UPPER	1
2	E3168	BUSH	1
3	E3146	BUSH	1
4	B3134	GEARCASE - LOWER	1
5	D3225	GEAR & PINION	1
6	SP650	BUSH - (FB 307) 5/18” x ¾” x 1 ½”	1
7	E3141	LAYSHAFT	1
8	D3226	FINAL DRIVE GEAR	1
9	SP644	BEARING	1
10	SP722	SEAL	2
11	SP172	SCREW - SOC. HD M6 x 20 LG	7
12	SP726	‘O’ RING	1
13	E3170	THRUST WASHER	1
14	D3137	WORMWHEEL	1
15	E3288	PINION	1
16	E3287	KEY	1
17	SP838	CIRCLIP	2
18	E3145	BUSH	1
19	SP643	BEARING	1
20	D3140	WORM	1
21	SP642	BEARING	1
22	SP844	CIRCLIP	1
23	SP721	SEAL	1
24	C3136	WORM BOX	1
25	SP159	SCREW - SOC. HD M6 x 40 LG	4
26	SP720	‘O’ RING	2
27	D3263	PLUG	1
28	D3223	SIGHTGLASS	1

LIMITED WARRANTY

Warranty: Maxwell Marine Ltd provides a three year limited warranty on all windlasses for pleasure boat usage, and a one year limited warranty for those systems used on commercial or charter vessels. Warranty, service and parts are available around the world. Contact your nearest Maxwell office for a complete list of service centres and distributors.

This warranty is subject to the following conditions and limitations:

1. This Warranty will be null and void if
   (a) there is any neglect or failure to properly maintain and service the products.
   (b) the products are serviced, repaired or maintained improperly or by unauthorised persons.
   (c) loss or damage is attributed to any act, matter or omission beyond the reasonable control of Maxwell or the purchaser.
2. Maxwell's liability shall be limited to repair or replacement (as determined by Maxwell) of the goods or parts defective in materials or workmanship.
3. Determination of the suitability of the product and the materials for the use contemplated by the buyer is the sole responsibility of the buyer, and Maxwell shall have no responsibility in connection with such suitability.
4. Maxwell shall not be liable for any loss, damages, harm or claim attributed to:
   (a) Use of the products in applications for which the products are not intended.
   (b) Corrosion, wear and tear or improper installation.
   (c) Improper use of the product.
5. This Warranty applies to the original purchaser of the products only. The benefits of the Warranty are not transferable to subsequent purchasers.
6. Maxwell shall not be responsible for shipping charges or installation labour associated with any warranty claims.
7. There are no warranties of merchantability, fitness for purpose, or any other kind, express or implied, and none shall be implied by law. If any such warranties are nonetheless implied by law for the benefit of the customer they shall be limited to a period of three years from the original purchase by the user.
8. Maxwell shall not be liable for consequential damages to any vessel, equipment, or other property or persons due to use or installation of Maxwell equipment.
9. This Warranty sets out your specific legal rights allowed by Maxwell; these may be varied by the laws of different countries. In addition, the purchaser may also have other legal rights which vary from country to country.
10. To make a claim under this Warranty, contact your nearest Maxwell Marine office or distributor. Proof of purchase and authorisation from Maxwell will be required prior to any repairs being attempted.

To be eligible for warranty protection, please either complete the form below at the time of purchase and return it to the appropriate address above, or fill out the electronic Warranty Form on our website, www.maxwellmarine.com

Purchaser

Name:

Address:

Telephone: Facsimile

Supplier / Dealer

Name:

Address:

Telephone: Facsimile

Windlass Model

Serial Number

Date of Purchase

Boat Type

Windlasses Supplied

☐ With boat

☐ Fitted by boat yard/dealer

☐ Purchased from dealer/chandler

Name

L.O.A.

Built by